

A COMPENDIUM *of*
miniature
ORCHID
SPECIES

volume 2

Ron Parsons • Mary E. Gerritsen

Redfern Natural History Productions





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A Compendium of
Miniature Orchid Species
volume 2



Ron Parsons and Mary E. Gerritsen

Edited by Alastair S. Robinson

Redfern Natural History Productions

Redfern Natural History Productions
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Figure 4.654 (page iii) *Pleurothallopsis norae* (Grower: John Leathers).

Figure 4.655 (facing page) *Thrixspermum merguense* (Grower: White Oak Orchids).





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Figure 4.656 (facing page) The inflorescence of *Oberonia rufilabris* is striking in both form and colour (Grower: Judy Carney).



Figure 4.657 The magnificent bloom of *Psychopsis limminghei*.
(Grower: Howard Gunn).

Haraella Kudô

Publication: Kudô, Y., 1930, *J. Soc. Trop. Agric.* 2: 26

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Etymology: Named for Yashi Hara, of Taihoken Imperial University, who discovered the species.

Type species: *Haraella retrocalla* (Hayata) Kudô, 1930, *J. Soc. Trop. Agric.* 2: 27.

Profile: A monotypic genus from Taiwan.

General plant morphology: Monopodial, epiphytic, small, leaves distichous, fleshy. *Flower* medium sized, sepals and petals subsimilar, free, spreading, lip not spurred, margin fringed, column short, broad, pollinia 2.



Figure 4.658 (above) Mounted *Haraella retrocalla* plants in bloom make for a fine display (Grower: Hanging Gardens).

HARAELLA

Haraella retrocalla (Hayata) Kudô

Publication: *J. Soc. Trop. Agric.* 2: 27 (1930)

Etymology: From the Latin *retro* (back, behind) and *callum* (hard skin), referring to the distinctive lip callus.

Homotypic synonyms: *Saccolabium retrocallum* Hayata, *Gastrochilus retrocallus* (Hayata) Hayata, *Gastrochilus retrocallosus* Schltr.

Heterotypic synonyms: *Haraella odorata* Kudô, *Saccolabium odoratum* (Kudô) Makino & Nemoto, *Gastrochilus odoratus* (Kudô) J.J.Sm.

Morphology: *Plant* to 10 cm wide, stem to 2 cm tall, pendent, leaves to 6 in number, distichous, branching freely from base when mature. *Leaf* 2.5–7 cm long by 0.5–1.1 cm wide, sessile, oblong-lanceolate to ligulate, somewhat to distinctly falcate, apex acute to obtuse, lamina leathery, fleshy, semi-glossy. *Inflorescence* a raceme, often 2 simultaneous inflorescences, sometimes more, 2–8 cm long, pendent, lateral, axillary. *Flower* to 2.5 cm long, to 4 in number, successive, resupinate, widely spreading, fragrant. Flower colour yellowish to greenish, little variation, but dark pattern on lip varies in shape and size, whilst lip fringe may have some additional maroon pigmentation.

Range, elevation and habitat: Endemic to Taiwan, *Haraella retrocalla* grows as an epiphyte on mossy branches and tree trunks in semi-shady situations in broadleaf forest. It occurs at elevations of 500–1500 m throughout the montane regions of the island. In nature this species blooms between July and November. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using a small amount of New Zealand *Sphagnum* moss around the roots. This species is not suited to pot culture due to the pendent nature of the plant. *Temperature* intermediate to intermediate-cool. *Light* medium shade. *Watering* moist, well drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength, but reduce water and fertiliser as bulbs mature, and during the winter months.

Comments: The only species in the genus, *Haraella retrocalla* is a much-loved favourite of many collectors. Many find the bee-like, blackish-purple markings on the fuzzy lip particularly endearing. The distinctive flowers have a lovely, sweet, lemony fragrance, hence the synonym *H. odorata*. Neither uncommon in collections nor difficult to grow, thriving plants are known to send up numerous basal offshoots, eventually forming attractive clumps. Plants in cultivation tend to bloom between early summer and mid-autumn, and occasionally at other times. There is a rare peloric form with dark maroon blotches in the petals.



Figure 4.659 (above) A pair of *Haraella retrocalla* flowers (Grower: Hanging Gardens).



Figure 4.660 (above) *Haraella retrocalla* blooms are freely produced and sweetly scented (Grower: Joe Marinello).

Hintonella Ames

Publication: Ames, O., 1938, *Bot. Mus. Leaflet* 6: 186

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Ornithocephalinae)

Type species: *Hintonella mexicana* Ames, 1938, *Bot. Mus. Leaflet* 6(9): 186.

Etymology: Named for British metallurgist George B. Hinton (1882–1943) who at the age of 50 decided to become a botanical explorer in his adopted home of Mexico. Hinton collected over 300 new plant species that included 4 new genera, as well as the plant that would become the type species for *Hintonella*.

Profile: A monotypic genus endemic to central and southwestern Mexico.

General plant morphology: Sympodial, epiphytic, miniature, clumping. *Pseudobulb* minute, subtended and partially obscured by leafy bracts, uppermost bracts longer than the leaf, leaf apical, unifoliate. *Flower* sepals and petals free, subsimilar, sub-equal, lip trilobed with transverse crests, inner surface with glandular trichomes, column erect, pollinia 4 in two unequal pairs.



Figure 4.661 (above) The plant and flowers of the monotypic *Hintonella mexicana* (Grower: Hanging Gardens).

HINTONELLA***Hintonella mexicana* Ames****Publication:** *Bot. Mus. Leaflet* 6(9): 186. 1938**Etymology:** The toponym *Mexico* and the Latin suffix *-ana*, meaning 'of Mexico.'**Morphology:** *Plant* 1.5–5 cm tall, clumping, branching, fan-like growths. *Pseudobulb* to 0.2–0.5 cm long by 0.3 cm wide, orbicular to ellipsoid, leafy bracts imbricate at base, distichous, 2–7 in number, leaf apical, usually unifoliate. *Leaf* to 5 cm long by 0.2 cm wide, very narrow, ligulate, apex acute, lamina sub-terete, sulcate, fleshy, leathery. *Inflorescence* a raceme, to 2.5 cm long including peduncle, to 2 simultaneous inflorescences, descending to pendent, slender, lateral, axillary between leafy bracts. *Flower* 0.6–0.8 cm long, 1–6 in number, simultaneous, resupinate, spreading, campanulate, nodding, pedicel subtended by bracts, ovary prominently ridged, faintly fragrant.**Range, elevation and habitat:** Endemic to Mexico, *Hintonella mexicana* occurs in the states of Jalisco, Michoacán, México, Morelos, Guerrero and possibly Oaxaca, at elevations of 1500–2200 m. It grows on the Pacific slopes of the Sierra Occidentale, where it is found as an epiphyte in various habitats. These include moist oak, oak-pine or dense, cool, humid montane *Podocarpus* and *Carpinus* forest on steep slopes, arroyos, ravines or above streams. It is widely distributed, locally abundant, and blooms between October and April.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, small wood shingles or possibly tree fern, with some New Zealand *Sphagnum* moss around the roots. It may also be potted in small pots using a fine bark mix or possibly moss. However, this species prefers not to remain wet, favouring air around the roots. *Temperature* intermediate to cool. *Light* light shade. *Watering* water frequently during the growing season, but reduce water in the autumn. Mist roots once or twice weekly during winter months. *Humidity* high during growing season, average during winter. *Air movement* good. *Propagation* occasionally by division, or by seed. Fertilise at 1/4 strength during late spring to mid-autumn. It is probably best to reduce or completely withhold fertiliser during winter months.**Comments:** A choice plant for the grower of miniatures, *Hintonella mexicana* is not seen in many collections. The white, bell-shaped flowers have a faint fragrance and display attractively, nodding from their generally descending spike. This species belongs to a cluster of genera closely related to *Ornithocephalus*, but interestingly, this entire group, once classified as subtribe Ornithocephalinae, has been found to fall within the *Oncidium* alliance through genetic analysis. In cultivation, *H. mexicana* blooms in the late winter.**Figure 4.662 (above)** Four *Hintonella mexicana* flowers (Grower: Hanging Gardens).**Figure 4.663 (above)** *Hintonella mexicana* bloom in detail (Grower: Marni Turkel).

Hofmeisterella Rchb.f.

Publication: Reichenbach, H. G., 1852, *Ann. Bot. Syst.* 3: 563

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Telipogoninae, sometimes placed in Ornithocephalinae)

Type species: *Hofmeisterella eumicroscopica* (Rchb.f.) Rchb.f., 1852, *Ann. Bot. Syst.* 3: 563.

Etymology: Named in honour of German botanist Wilhelm Friedrich Benedict Hofmeister (1824–1877). Reichenbach originally placed the type species in the genus *Hofmeistera*, but later that same year decided that this name was too similar to *Hofmeisteria*, a genus of Asteraceae, and renamed the genus *Hofmeisterella*.

Homotypic synonym: *Hofmeistera* Rchb.f., nom. illeg.

Profile: A genus of 2 species ranging from Colombia to Bolivia and northwestern Venezuela.

General plant morphology: Sympodial, epiphytic, miniature, fan-like. *Pseudobulb* absent. *Leaf* small, semi-terete. *Inflorescence* a raceme, laterally flattened to triquetrous. *Flower* proportionately large, sepals and petals free, spreading, lip three-lobed, sessile, lacking callus, column broad, winged, rostellum recurved, tooth-like, pollinia 4 in two unequal pairs.



Figure 4.664 (above) The inflorescence of *Hofmeisterella eumicroscopica* bearing two pristine blooms (Photo: Alex Portilla, Ecuagenera).

HOFMEISTERELLA***Hofmeisterella eumicroscopica* (Rchb.f.) Rchb.f.****Publication:** *Ann. Bot. Syst.* 3: 563 (1852)**Etymology:** From the Greek *eu* (true, good), *micro* (small) and *scopa* (looking, watching), referring to the fine details of the beautiful flowers.**Homotypic synonym:** *Hofmeistera eumicroscopica* Rchb.f.**Morphology:** *Plant* 2–5 cm tall, usually single, rarely branching, roots proportionately thick. *Pseudobulb* absent, stem short, leaves distichous, imbricate at base, 3–8 in number. *Leaf* to 2.5 cm long by 0.3 cm wide, linear-ob lanceolate to linear-oblong, ensiform, apex acute, lamina bilaterally compressed, suberect to spreading, leathery, fleshy. *Inflorescence* a raceme, 7.5–27 cm long, 1–2 simultaneous inflorescences, erect, flexuous, lateral, axillary. *Flower* 1–1.5 (rarely to 2) cm long, to 11 in number, rarely more, successive, 1–2 open simultaneously, resupinate, widely spreading.**Range, elevation and habitat:** *Hofmeisterella eumicroscopica* occurs in Colombia, Ecuador (provinces of Loja, Napo, Pichincha and Zamora-Chinchi), Peru (departments of Amazonas, Cusco, Huánuco, Junin and Oxapampa), Bolivia (department of Cochabamba) and Venezuela (states of Merida and Zulía) at elevations of 1650–2900 m; it is considered rare in all localities. It grows as an epiphyte on twigs and slender branches of shrubs and small trees in cool to cold, wet, montane cloud forest. In nature, this species blooms between March and August, although it has been seen in flower in other months.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots, but ensuring humidity is high. This species may also be potted in small pots using an open, fast draining mix. *Temperature* intermediate-cool to cool. *Light* light shade. *Watering* moist, well drained, not wet. Allow sufficient air to the roots. *Humidity* high. *Air movement* good to brisk. *Propagation* propagate this rare species by seed whenever possible. *Fertilise* at 1/4 strength weekly.**Comments:** A rare species by any standard, *Hofmeisterella eumicroscopica* is also difficult to cultivate, and most growers fortunate enough to acquire a plant struggle to keep it alive for extended periods. It is possible that this species is short-lived even in nature. The genus *Hofmeisterella* has, at one time or another, been placed in both the Ornithocephalinae and the Telipogoninae; recent genetic studies have determined that both subtribes fall within the Oncidiinae.**Figure 4.665 (above)** *Hofmeisterella eumicroscopica* bloom in detail (Grower: Walter Teague).**Figure 4.666 (above)** *Hofmeisterella eumicroscopica* bloom in detail (Grower: Steve Beckendorf).

Holcoglossum Schltr.

Publication: Schlechter, F. R. R., 1919, *Repert. Spec. Nov. Regni Veg. Beih.* 4: 285

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Holcoglossum quasipinifolium* (Hayata) Schltr., 1919, *Repert. Spec. Nov. Regni Veg. Beih.* 4: 285.

Etymology: From the Greek *holkos* (strap) and *glossa* (tongue), referring to the strap-shaped lip of the type species, *Holcoglossum quasipinifolium*.

Profile: A genus currently consisting of 14 species from China, Taiwan, Assam, Cambodia, Laos, Malaysia, Thailand and Vietnam.

General plant morphology: Monopodial, epiphytic or lithophytic, small to medium sized. *Pseudobulb* absent, stems closed by persistent leaf sheaths, leaves many, distichous, imbricate. *Leaf* terete to sub-terete, fleshy, adaxially channelled, dilated into sheathing base. *Inflorescence* a raceme, lateral, axillary. *Flower* usually spreading widely, sepals subsimilar, lateral sepals often somewhat larger, petals similar to dorsal sepal, lip three-lobed, saccate or spurred, spur often cylindric and curved, column short, thick winged, foot short, rostellum distinct, pollinia 2.



Figure 4.667 (above) A mounted *Holcoglossum sinicum* plant bearing numerous fine, artfully coloured flowers (Grower: Ron Parsons).

HOLCOGLOSSUM

Holcoglossum flavescens (Schltr.) Z.H. Tsi

Publication: *Acta Phytotax. Sin.* 20: 441 (1982)

Etymology: From the Latin *flavescens* (pale yellow, becoming yellow), referring to the flower colour of this species.

Homotypic synonyms: *Aerides flavescens* Schltr., *Saccolabium yunpeense* Tang & F.T. Wang, *Papilionanthe flavescens* (Schltr.) Garay.

Morphology: Plant to 15 cm wide, stem short 1–2 cm, branching from base, sometimes prolifically with age, roots numerous, thick and fleshy. Leaf 4–8.5 cm long by up to 4 mm wide, ligulate, apex obtuse to rounded, lamina semi-terete, linear to falcate, arcuate, dorsal sulcate, leathery, fleshy, usually suffused with reddish-purple. Inflorescence a raceme, 3–5 cm long, 1–4 simultaneous inflorescences, sub-erect to descending, peduncle green suffused with or entirely reddish-purple. Flower 1.2–2 (rarely to 2.5) cm wide, 1–4 in number, simultaneous, resupinate, spur small, fragrant. The flower varies in the shape and width of segments, and in the proportion and intensity of red and yellow colouration on the lip. There is also a pink flowered form with dense rose-pink stripes on the inner side lobes and basal half of the spur and lip.

Range, elevation and habitat: *Holcoglossum flavescens* is endemic to China, being found in northern Fujian, southwestern Hubei, southwestern Sichuan and northern Yunnan, where it grows as an epiphyte on tree trunks in broadleaf evergreen forest at elevations of 1200–2700 m. In this area the summers are rainy, and in winter the plants may also experience frosts. This species blooms between midsummer and early autumn in nature. Conservation status unknown.

Culture recommendations: Substrate mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little to no New Zealand *Sphagnum* moss around the roots. This species may also be grown potted in small pots with an open, fast draining medium. Temperature intermediate to intermediate-cool, but enjoys cooler nights. During winter, this species can take temperatures to 2 °C (35 °F) at night, but plants should be dry. Light bright diffuse to light shade. Watering Water frequently during spring to early autumn, but allow to dry briefly between waterings. Plants should be kept much drier during winter, only misting roots occasionally. Humidity high. Air movement good to brisk. Propagation by division or seed. Fertilise at 1/4 to 1/2 strength weekly, but reduce or withhold fertiliser during winter.

Comments: Possibly the smallest species in the genus, *Holcoglossum flavescens* is an exceptional taxon. The plant itself is handsome, with a two-ranked column of narrow, fleshy, channelled leaves, and it is particularly attractive when grown on a decorative piece of wood. As plants mature, they often send up multiple side growths, forming nice clumps. The

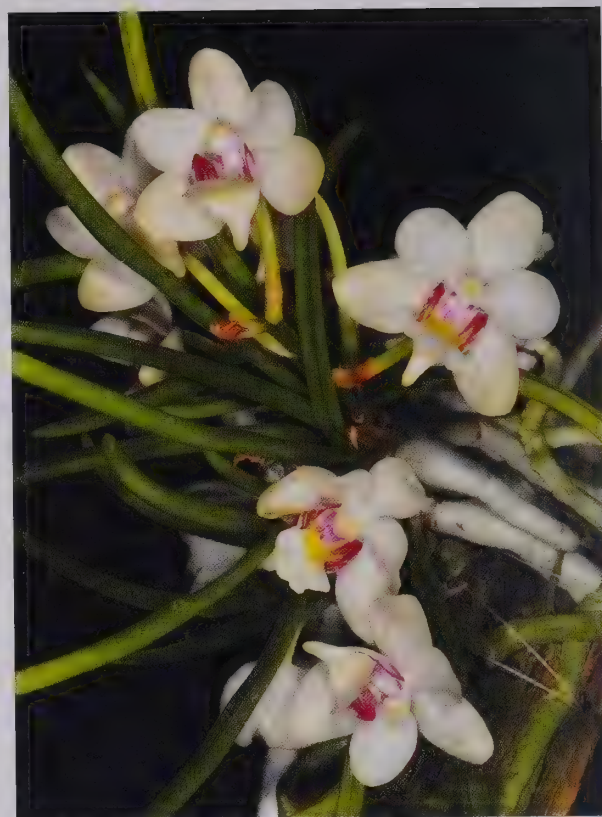


Figure 4.668 (above) A *Holcoglossum flavescens* plant in bloom (Grower: Ron Parsons).



Figure 4.669 (above) The pretty *Holcoglossum flavescens* flower in detail (Grower: Ron Parsons).

HOLCOGLOSSUM

flowers are very attractive with their full shape, brightly coloured lips and exquisite fragrance. *Holcoglossum flavescens* is most similar in flower to *H. sinicum* Christenson, but the latter plant produces longer, much narrower leaves and a pendent habit. Another similar species is *H. rupestre* (Handel-Mazzetti) Garay, but the plant is significantly larger and the flowers differ in lip shape and details of the callus. The floriferous plants of *H. flavescens* tend to bloom between mid-winter and summer in cultivation.



Figure 4.670 (above) A fine clump of *Holcoglossum flavescens* growths bearing many attractive flowers. This handsome Chinese taxon divides readily as plants mature (Grower: Ron Parsons).

Homalopetalum Rolfe

Publication: Rolfe, R. A., 1896, *Hooker's Icon. Pl.* 25: t. 2461

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Homalopetalum vomeriforme* (Sw.) Fawc. & Rendle, 1910, *Fl. Jamaica* 1: 106.

Etymology: From the Greek *homalos* (equal) and *petalum* (petal).

Heterotypic synonyms: *Pinelia* Lindl. (1853) non *Pinellia* (1839), *Pinelianthe* Rauschert.

Profile: A genus currently consisting of 8 species, found in Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Cuba, Dominican Republic, Jamaica, Venezuela, Ecuador, Peru and Brazil. There is some controversy as to which species should be placed within this genus.

General plant morphology: Sympodial, epiphytic, miniature, creeping. *Pseudobulb* small, leaf apical, unifoliate. *Inflorescence* a raceme, proportionately long, filiform, terminal. *Flower* usually single, sepals and petals subsimilar, spreading, lip unlobed, pair of small calli at base, column arcuate, with pair of small teeth at base, pollinia 8.



Figure 4.671 (above) The translucent, ethereal flowers of *Homalopetalum pumilio* are proportionately very large, in addition to being beautiful, making this taxon a popular subject in any collection (Grower: Mary Gerritsen).

HOMALOPETALUM

Homalopetalum kienastii (Rchb.f.) Withner

Publication: *Cattleyas & Relatives* 5: 158 (1998)

Etymology: Named for Kienast Zölly of Zurich, Switzerland, Swiss consul in Mexico and discoverer of this species. Zölly lived in Orizaba (Veracruz, Mexico) for a number of years, and collected a significant number of new orchid species.

Homotypic synonyms: *Ponera kienastii* Rchb.f., *Scaphyglottis kienastii* (Rchb.f.) Hemsl., *Hartwegia kienastii* Rolfe, *Domingoa kienastii* (Rchb.f.) Dressler.

Heterotypic synonyms: *Hartwegia bergeriana* Schltr., *Scaphyglottis bergeriana* (Schltr.) L.O.Williams, *Nageliella bergeriana* (Schltr.) Ames & Correll.

Morphology: *Plant* 3.5–8 cm tall, creeping to trailing, branching, pseudobulbs to 3 cm apart. *Pseudobulb* 0.4–1.5 cm long by 0.15–0.25 cm wide, small, fusiform to ellipsoid to somewhat clavate, tapering narrowly at base, glossy dark green when young, sometimes suffused with red. *Leaf* 1.5–7 cm long by 0.4–0.8 cm wide, sessile, narrowly linear-oblong, apex obtuse to acute, lamina semi-terete, dorsally sulcate, erect, leathery, fleshy, rigid, mottled with minute grey-green papillae, glaucous, young leaves often suffused with purple. *Inflorescence* a raceme, to 7 cm long, erect, covered in bracts along length, blooming for more than one season. *Flower* 0.9–1.7 cm wide, few in number, successive, resupinate, spreading, campanulate. Flower colour varies from brownish to greenish, and in the amount of purplish markings on the lip as well as petal and sepal striping.

Range, elevation and habitat: One of a small number of Mexican orchids whose area of distribution includes both the Pacific and Gulf of Mexico drainage basins. The endemic *Homalopetalum kienastii* is known from the states of Guerrero, Hidalgo, México, Michoacán, Oaxaca, Tlaxcala and Puebla in the ranges of Sierra Madre del Sur, Sierra Madre Oriental and the Transverse Volcanic Belt, at elevations of 1900–2750 m. The various populations of this species are quite isolated from each other. It is often found in seasonal oak forests in highlands surrounding dry basins, where it grows epiphytically or lithophytically. The type specimen was discovered near Comascaltepec, near Mexico City, where it was found in cold situations, growing in dense masses and patches on trees, descending to the moss on the ground. It flowers intermittently year round. This species is not considered threatened.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using a little or no moss around the roots. Due to the ascending rhizome, this species is probably not well-suited to potted culture, and additionally plants do not like to stay wet. *Temperature* intermediate to intermediate-cool, but



Figure 4.672 (above) The flower of *Homalopetalum kienastii*, a Mexican endemic (Grower: Walter Teague).



Figure 4.673 (above) *Homalopetalum kienastii* has interesting leaves and flowers (Grower: Andy's Orchids).

HOMALOPETALUM

favouring cooler nights. During winter, this species can take temperatures as cold as 2 °C (35 °F), but it must be dry. *Light* bright diffuse to light shade. *Watering* water frequently during spring to early autumn, but allow to dry briefly between waterings. Plants should be kept much drier during winter, only misting roots occasionally. *Humidity* high during growing season, average during winter. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or withhold fertiliser during winter.

Comments: *Homalopetalum kienastii* is a seemingly underappreciated species that deserves to be more commonly grown. The stout little plant has rather small pseudobulbs with attractive, greyish-stippled, thick, succulent leaves, and the erect spikes will flower for more than one season, usually between mid-winter and late spring in cultivation. Although this species is currently classified by the World Checklist of Selected Plant Families as belonging to the genus *Homalopetalum*, the plant and flowering habit seem to fit better in *Domingoa*, a genus within which it has been placed in the past. Pertinently, Soto Arenas (2008) observes under his description of the species (as *Domingoa kienastii*) that, "Phylogenetic analysis of morphological and molecular data indicate that this species is not a *Homalopetalum* as suggested by Withner (1998)."

Figure 4.675 (below) *Homalopetalum kienastii* closely resembles *Domingoa*, and molecular data suggests that it does not belong within *Homalopetalum* (Grower: Russ Varnado).

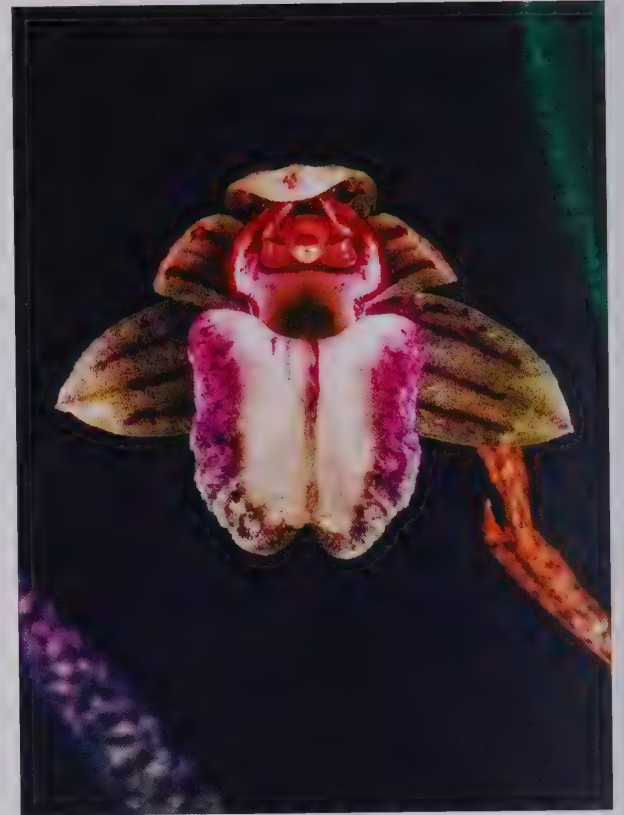


Figure 4.674 (above) The colourful *Homalopetalum kienastii* bloom in detail (Grower: Unknown).



HOMALOPETALUM

Homalopetalum pachyphyllum (L.O.Williams) Dressler

Publication: *Taxon* 13: 246 (1964)

Etymology: From the Greek *pachys* (thick) and *phyllon* (leaf), referring to the fleshy leaf

Homotypic synonym: *Scaphyglottis pachyphylla* L.O.Williams.

Morphology: *Plant* 1.4–5 cm tall, creeping to pendent, repent, pseudobulbs spaced 0.4–0.8 cm apart along rhizome, plant sometimes suffused purple. *Pseudobulb* to 1 cm tall by 0.5 cm wide, ovoid, wrinkling with age. *Leaf* 1.2–6 cm long by 0.3–0.5 cm wide, sessile, linear-lanceolate to oblong-lanceolate, apex obtuse to acute, acuminate, lamina erect to spreading, leathery, fleshy, rigid. *Inflorescence* a raceme, 0.5–1 cm long, erect, covered in imbricating dried bracts. *Flower* 1–1.5 cm wide, single, resupinate, campanulate, dorsal sepal hooded, forward-facing, petals forward-pointing.

Range, elevation and habitat: *Homalopetalum pachyphyllum* is an uncommon species that ranges from Mexico (states of Jalisco, Guerrero, México and Michoacán) to Guatemala and possibly Costa Rica, at elevations of 1800–2800 m. It grows as an epiphyte in cool and humid oak, oak-pine, and mixed deciduous forest, often on trees near streams. This species blooms between September and November in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little to no New Zealand *Sphagnum* moss around the roots. Horizontal rafts may better suit this species. Probably not well-suited to potted culture due to rambling, creeping plant habit. *Temperature* intermediate to cool. *Light* bright diffuse to light shade. *Watering* water frequently during spring to early autumn, allowing to dry briefly between waterings. Plants should be kept much during winter, but mist roots every 7–10 days. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or withhold fertiliser during winter.

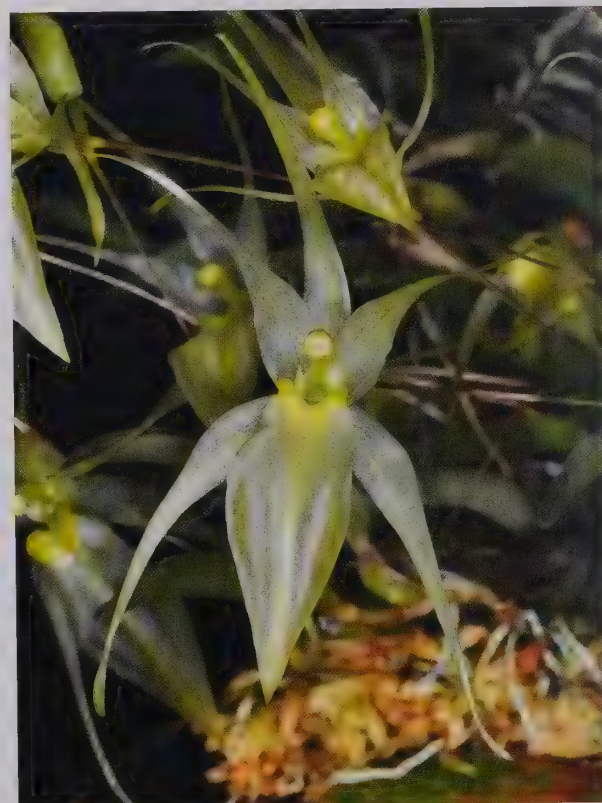
Comments: Infrequently seen in collections, *Homalopetalum pachyphyllum* is also uncommon in nature. While it does not have the same appeal as its relative, *H. pumilio*, it nonetheless has a charm of its own. The flowers are noticeably smaller, but unlike in the latter species, they are not monochromatic. Rather, they are often variably suffused with purple. *Homalopetalum pachyphyllum* blooms between mid-summer and early autumn in cultivation.



Figure 4.676 (above) The small, but charming flowers of *Homalopetalum pachyphyllum* (Grower: Hanging Gardens).



Figure 4.677 (above) *Homalopetalum pachyphyllum* growths photographed in the wild (Photo: Dennis Szeszko).

HOMALOPETALUM***Homalopetalum pumilio*** (Rchb.f.) Schltr.**Publication:** *Arch. Bot. São Paulo* 1: 250 (1926)**Etymology:** From the Latin *pumilio* (dwarf, very small), referring to the diminutive plant size.**Homotypic synonyms:** *Brassavola pumilio* Rchb.f., *Bletia pumilio* (Rchb.f.) Rchb.f., *Pinelia pumilio* (Rchb.f.) Schltr.**Heterotypic synonyms:** *Pinelia lehmanniana* Kraenzl., *Restrepia lehmanniana* (Kraenzl.) Schltr., *Homalopetalum costaricense* Schltr., *Homalopetalum lehmannianum* (Kraenzl.) Schltr., *Pinelia tuerckheimii* Kraenzl.**Morphology:** Plant 1.4–5 cm tall, creeping to pendent, much branching, mat-forming, pseudobulbs congested to spread apart at short intervals, sometimes on same plant. *Pseudobulb* small, 0.5–1.3 cm tall by 0.2–0.3 cm wide, obliquely ovoid to oblong to subcylindrical, alternate along rhizome, ascending to obliquely erect, often suffused with purple. *Leaf* 1–3 cm long by 0.2–0.5 cm wide, ovate to ovate-lanceolate to oblong to linear, apex obtuse to acute, lamina fleshy, leathery. *Inflorescence* a raceme, 2.5–7.6 cm long, erect to ascending, with short tubular sheaths. *Flower* proportionately large, to 3 cm long, single, resupinate, spreading. Flowers vary in colour from translucent whitish to light greenish-tan, and are sometimes suffused with purple or greenish.**Range, elevation and habitat:** *Homalopetalum pumilio* is a widespread species that may be locally abundant, but which is uncommon overall. It is known to occur in Mexico (states of Nayarit, Jalisco, Michoacán, México, Guerrero, San Luis Potosí, Oaxaca, Veracruz and Chiapas), Guatemala (departments of Baja Verapaz and Zacapa), Honduras (department of Francisco Morazán), Nicaragua (departments of Atlántico Norte and Nueva Segovia), Costa Rica (provinces of Alajuela and Heredia), Panama (provinces of Chiriquí and Coclé), Colombia, Ecuador (province of Morona-Santiago) and Peru, at elevations ranging from 580–2100 m. It grows as an epiphyte on the tops and undersides of horizontal limbs and on mossy tree trunks in oak and oak-pine woodland, humid mixed forest, cloud forest and elfin forest, where it is often found in open, somewhat bright conditions. It also grows as a lithophyte on mossy boulders near streams and in ravines. In western Mexico, it is often seen in oligotrophic forests of *Pinus oocarpa*, *Quercus elliptica* and *Befaria mexicana*, commonly on twigs of *Clusia*. In Peru, it grows in damp forests that have a drier season of limited showers. In Mexico this species blooms from June to September, and in Peru between April and November. The species has been collected in flower in Costa Rica in August, and in Panama between September and December.**Culture recommendations:** Substrate mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little to no**Figure 4.678 (above)** The striking *Homalopetalum pumilio* bloom (Grower: Marni Turkel).**Figure 4.679 (above)** A large, greenish white flower of *Homalopetalum pumilio* (Grower: Howard Gunn).

HOMALOPETALUM

New Zealand *Sphagnum* moss around the roots. This species is probably not well-suited to potted culture due to its growth habit and intolerance of root disturbance. Horizontal rafts may suit this species better. *Temperature* intermediate to intermediate-cool. *Light* bright diffuse to light shade. *Watering* water frequently, but allow to dry briefly between waterings. In parts of its range, such as Mexico, this species undergoes a prolonged dry period of 5–6 months; it is probably best to reduce watering in the autumn or when the bulbs mature, misting the roots every 10–14 days through the winter dormancy. *Humidity* average (50–60 %) to high whilst growing, and average during winter rest. *Air movement* brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or withhold fertiliser during winter.

Comments: A true treasure amongst miniature orchids, *Homalopetalum pumilio* has stunning, somewhat translucent, greenish-white to pale green flowers that are absolutely huge in proportion to the attractive, rambling growths. The flowers hang singly at the end of longish, thread-like spikes. This species is relatively easy to obtain and, once established, tends to form branching, but orderly rows of quite small, ovoid pseudobulbs, each bearing a single, succulent leaf. This species resents root disturbance, so it is best to make divisions or to re-mount plants only while they are in active growth. Flowers are usually seen from early to mid-summer and early autumn in cultivation.



Figure 4.680 (above) *Homalopetalum pumilio* growths are dwarfed by their flowers (Grower: Mary Gerritsen).



Figure 4.681 (above) A vertical mount supports a host of *Homalopetalum pumilio* blooms (Grower: Howard Gunn).

Hymenorchis Schltr.

Publication: Schlechter, F. R. R., 1913, *Repert. Spec. Nov. Regni Veg. Beih.* 1: 994

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Hymenorchis saccata* Schltr., 1913, *Repert. Spec. Nov. Regni Veg. Beih.* 1: 995.

Etymology: From the Greek *hymen* (fine membrane) and *orkhis* (testicle, meaning *orchid* by extension), a reference to the fine texture of the flowers.

Profile: A genus of 11 species found in Java, the Philippines, New Guinea and New Caledonia.

General plant morphology: Monopodial, epiphytic, stems short, leaves distichous, leaf bases imbricate, roots fine. *Leaf* fleshy, margins usually softly serrated. *Inflorescence* a raceme, short. *Flower* few to several, thin textured, sepals and petals subsimilar, spreading to somewhat campanulate, margins finely serrate, lip entire, concave with spur at base, column short, stout, pollinia 2.



Figure 4.682 (above) A dense floral display of *Hymenorchis javanica* seen here in cultivation (Grower: Tom Mudge).

HYMENORCHIS

Hymenorchis javanica (Teijsm. & Binn.) Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 1: 995 (1913)

Etymology: The toponym *Java* with the Latin suffix *-ica* meaning from Java.

Homotypic synonyms: *Oeceoclades javanica* Teijsm. & Binn., *Saccolabium javanicum* (Teijsm. & Binn.) J.J.Sm.

Morphology: *Plant* to 4 cm wide, stems short to 3 cm, descending to pendent, leaves to 12 in number, occasionally more. *Leaf* 1.2–2.2 cm long by 0.8–1 cm wide, oblong, apex acute, lamina fleshy, leathery, margins minutely serrate-denticulate, ventral side paler with fine, darker green spotting. *Inflorescence* dense sub-umbellate raceme, short, 1–2.5 cm long, to 4 simultaneous inflorescences, pendent, lateral, axillary. *Flower* 0.7–1 cm, to 12 in number, simultaneous, resupinate, spreading to widely spreading, campanulate, texture diaphanous, spur backwards pointing, straight, stout, to 0.4 cm long.

Range, elevation and habitat: *Hymenorchis javanica* is an uncommon to rather rare endemic of western Java, where it grows at elevations of 900–1000 m as an epiphyte on tree trunks in open forest. It tends to bloom in September in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or tree fern, using little New Zealand *Sphagnum* moss around the roots. This species is probably not well-suited to potted culture due to the pendent habit of the plant. *Temperature* intermediate to intermediate-cool. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by seed. Plants are usually single, so rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: A veritable crystalline-flowered jewel, *Hymenorchis javanica* is the only species of the genus that is seen with any regularity, and even then it cannot be considered common. The plant is attractive in its own right, with oval, dark leaves that are softly serrated along the margins, but it is the flowers that are its finest feature. With up to 12 blooms tightly clustered in a dense head, and as many as four simultaneous inflorescences hanging below the leaves, it is no wonder that this taxon is sought by all who see it in bloom. The full-shaped, seemingly sugar-coated flowers with their bright green, contrasting lip, nod demurely from the scape. An unfortunate drawback, observed by many, is the tendency for plants in apparently perfect health to start dropping leaves and shortly thereafter die. Flowers may appear in any month in cultivation.



Figure 4.683 (above) The crystalline flowers of the attractive *Hymenorchis javanica* (Grower: Mary Gerritsen).

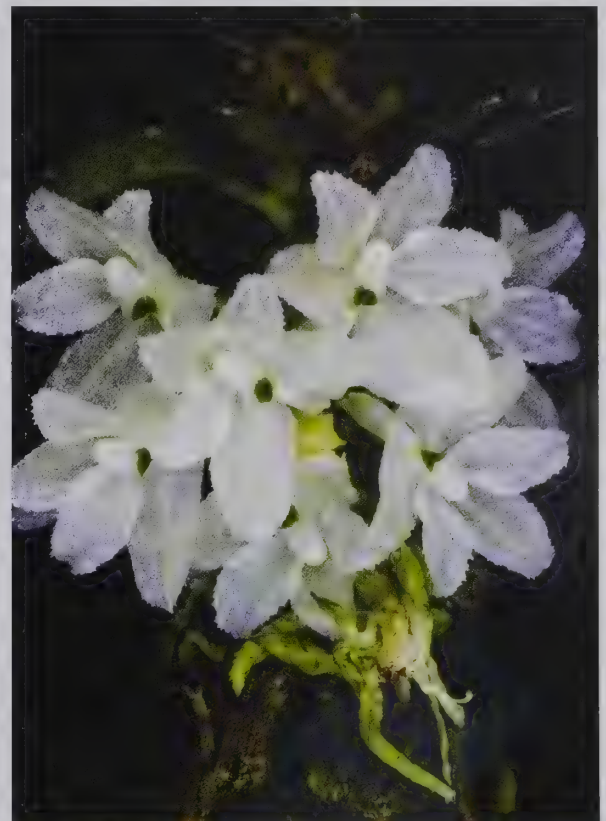


Figure 4.684 (above) *Hymenorchis javanica* growing on a mount (Grower: Ron Parsons).

Ionopsis Kunth

Publication: Humboldt, F. W. H. von, Bonpland, A. J. A., & Kunth, C.S., *Nov. Gen. Sp.* 1: 348 (1816)

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Ionopsis utricularioides* (Sw.) Lindl., 1826, *Coll. Bot.*: t. 39A.

Etymology: From the Greek *ion-* (violet) and *opsis* (like), referring to the fancied similarity of the flowers to violets.

Heterotypic synonyms: *Cybelion* Spreng., *Iantha* Hook., *Iantha* Steud. nom. inval., *Konanzia* Dodson & N. Williams.

Profile: A genus of 3–6 species widely distributed throughout much of tropical America, from southern Florida, Mexico, Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Colombia, Ecuador, Galapagos Islands, Peru, Bolivia, Venezuela, French Guiana, Guyana, Suriname, Brazil, Paraguay, Cayman Islands, Cuba, Hispaniola, Jamaica, Leeward Islands, Puerto Rico, Trinidad and Tobago, and the Windward Islands. All species in the genus are generally twig epiphytes found at elevations from sea level to 200 m, often growing in high light situations.

General plant morphology: Sympodial, epiphytic, small, clumping to shortly spaced along rhizome, leaves with imbricate leaf bases. *Pseudobulb* minute to absent, leafy bracts sub-equal or equal to leaves, 1–5 in number. *Leaf* bifacial, articulate, terete, leathery. *Inflorescence* a raceme or panicle, slender, short to elongate-scapose, exceeding length of leaves, one to two simultaneous inflorescences, lateral, axillary. *Flower* small, resupinate, campanulate to widely spreading, sepals and petals subsimilar, lateral sepals free or fused at base, lip proportionately large, clawed, fan-shaped, shallow notch with apicule at tip, with pair of keeled calli, column short, pollinia 2, ovary glabrous.



Figure 4.685 (above) Said to resemble the flowers of the carnivorous plant genus *Utricularia*, the blooms of *Ionopsis utricularioides* are indeed pretty, delicate and bring to mind that eponymous genus (Grower: Anna Chai).

IONOPSIS

Ionopsis satyrioides (Sw.) Rchb.f.

Publication: *Ann. Bot. Syst.* 6: 683 (1863)

Etymology: From the Greek *Satyr* (Sylvan demigod, half man, half goat) with the suffix *-oides* (resembling), possibly a fanciful reference to the appearance of the flower.

Homotypic synonyms: *Epidendrum satyrioides* Sw.

Heterotypic synonyms: *Dendrobium testiculatum* Sw., *Cybelion testiculatum* (Sw.) Spreng., *Ionopsis testiculata* (Sw.) Lindl., *Ionopsis teres* Lindl., *Cybelion teres* (Lindl.) Steud., *Epidendrum acinacifolium* Sessé & Moc., *Ionopsis pusilla* Barb.Rodr., *Ionopsis costaricensis* Schltr.

Morphology: *Plant* 4–14 cm, fan-shaped, repent, growths separated at intervals to 2.5 cm, occasionally more, along rhizome. *Pseudobulb* virtually absent, leaves 3. *Leaf* 5–14 cm long by 0.2–0.5 cm wide, falcate, apex acute, lamina semi-terete, sulcate dorsally, erect to suberect, leathery, fleshy, somewhat flexible to rigid, often suffused with purple. *Inflorescence* a raceme or few-branched panicle, 3–20 cm long. *Flower* 0.6–0.8 cm long, few to 20 in number, simultaneous, spreading, campanulate, upward facing, fragrant. Flowers vary in colour intensity and width of stripes.

Range, elevation and habitat: A very widespread and common species, *Ionopsis satyrioides* occurs in southern Mexico, Guatemala, Belize (district of Stann Creek), Honduras (departments of Atlántida, Cortés and Yoro), Nicaragua (department of Río San Juan),



Figure 4.686 (above) The pretty and fragrant blooms of *Ionopsis satyrioides*, a rather underrated member of this genus (Photo: Gilberto Merino, Ecuagenera).

IONOPSIS

Panama (provinces of Bocas del Toro, Canal Area and Chiriquí), Costa Rica (provinces of Cartago and Heredia), Colombia (department of Antioquia), Ecuador (provinces of El Oro, Esmeraldas, Los Ríos, Morona-Santiago, Napo, Pastaza, Pichincha, and Sucumbíos), Peru (departments of Cusco, Huánuco, Junin and Pasco), Bolivia (departments of Cochabamba and Santa Cruz), Venezuela (states of Bolívar, Delta Amacuro, Distrito Federal and Miranda), Suriname, Guyana, Brazil (states of Pará, Amazonas and Maranhão), Hispaniola, Puerto Rico, Jamaica, Trinidad and Cuba. It grows as an epiphyte on small shrubs and trees, usually in moist to wet forest, and sometimes on cultivated fruit trees, at elevations ranging from 75–1450 m. This species blooms between spring and autumn in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss. This species may also be potted in small to tiny pots with an open, fast draining mix. This species dislikes root disturbance. *Temperature* warm. *Light* light shade. *Watering* allow to dry completely between waterings. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. This species is susceptible to mealybug and scale insect infestations on both the plants and inflorescences, and to aphids on the flowers.

Comments: *Ionopsis satyrioides* is not usually seen in cultivation, and then only in warmer growing collections where it is infrequent. It competes poorly for attention against the related *I. utricularioides*, which is more impressive when in flower. Even so, the fragrant flowered *I. satyrioides* is a delightful little species that does not take up much space. Plants in cultivation tend to bloom in the summer, and also occasionally at other times.



Figure 4.687 (above) A pair of *Ionopsis satyrioides* flowers. This taxon is not often encountered in collections (Grower: Andy's Orchids).

IONOPSIS

Ionopsis utricularioides (Sw.) Lindl.

Publication: *Coll. Bot.*: t. 39A (1826)

Etymology: *Utricularia* plus the Latin suffix *-oides* (like, resembling), referring to the similarity of the flowers to those of the eponymous carnivorous plant genus in the family Lentibulariaceae.

Homotypic synonyms: *Epidendrum utricularioides* Sw., *Dendrobium utricularioides* (Sw.) Sw., *Cybelion utriculariae* Spreng. nom. superfl.

Heterotypic synonyms: *Cybelion pallidiflorum* (Hook.) Spreng., *Cybelion pulchellum* (Kunth) Spreng., *Cybelion tenerum* (Lindl.) Steud., *Epidendrum calcaratum* Sessé & Moc. nom. illeg., *Epidendrum crenatum* Vell., *Epidendrum paniculatum* (Lindl.) Rchb.f. nom. illeg., *Epidendrum sessei* Hoehne, *Ionopsis gardneri* Lindl., *Iantha pallidiflora* Hook., *Ionopsis pallidiflora* (Hook.) Lindl., *Ionopsis paniculata* Lindl., *Ionopsis paniculata* var. *maxima* L. Linden & Rodigas, *Ionopsis pulchella* Kunth, *Ionopsis tenera* Lindl., *Ionopsis tenera* var. *effusa* Lindl., *Ionopsis tenera* var. *tomentosa* Lindl., *Ionopsis tenera* var. *violacea* Lindl., *Ionopsis utricularioides* var. *angustifolia* Cogn., *Ionopsis utricularioides* f. *latifolia* Urb., *Ionopsis utricularioides* var. *parviflora* Schltr., *Ionopsis utricularioides* var. *virginalis* L.C.Menezes, *Ionopsis utricularioides* f. *virginalis* (L.C.Menezes) Christenson, *Ionopsis zonalis* Lindl., *Scaphyglottis pallidiflora* (Hook.) Lindl.

Morphology: Plant to 15 cm tall, fan-shaped, growths clumping to spaced at various lengths along rhizome, roots slender, prolific. *Pseudobulb* tiny to 2.5 cm long by 0.7 cm wide, ellipsoid to ovoid, laterally compressed, usually obscured by leafy bracts, sometimes with minute deciduous apicule. *Leaf* true leaf minute, leafy bracts to 15 cm long, occasionally longer, by up to 1.8 cm wide, sessile, conduplicate with strong ventral keel, linear-lanceolate to oblong-lanceolate, apex acute to obtuse, lamina erect, somewhat flexible to rigid. *Inflorescence* a panicle, occasionally racemose, to 60 cm long, exceptionally to 90 cm, 1–2 simultaneous inflorescences, erect to spreading. *Flower* 1–1.8 cm long, few to many in number, simultaneous, widely spreading. Flowers vary in colour from nearly solid white to lilac, and in intensity and pattern from nearly plain to heavily overlaid with purple markings.

Range, elevation and habitat: *Ionopsis utricularioides* is an extremely widespread, common to abundant species, found in Florida, Mexico (states of Chiapas, Guerrero, Jalisco, Nayarit, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatan), Guatemala (departments of Alta Verapaz, Izabal, Petén and Santa Rosa), Belize (districts of Belize, Cayo, Orange Walk, Stann Creek and Toledo), Honduras (departments of Atlántida, Colón, Comayagua, Cortés and Yuro), El Salvador (departments of La Libertad and Santa Ana), Nicaragua (departments of Atlántico Norte, Atlántico Sur, Chontales and Río San Juan), Costa Rica (provinces of Alajuela and Heredia), Panama (Canal Area, Darién and Panamá), Colombia



Figure 4.688 (above) An *Ionopsis utricularioides* inflorescence puts on a dazzling display (Grower: Tom Mudge).



Figure 4.689 (above) Two stunning sprays of *Ionopsis utricularioides* flowers (Grower: Tom Mudge).

IONOPSIS

(departments of Antioquia and Nariño), Ecuador (Bolívar, El Oro, Esmeraldas, Galapagos, Guayas, Los Ríos, Manabí and Zamora-Chinchipe), Peru (Amazonas, Cajamarca, Huánuco, Junín, Loreto and San Martín), Bolivia (departments of Beni, Cochabamba, La Paz and Santa Cruz), Venezuela (states of Amazonas, Anzoátegui, Aragua, Bolívar, Carabobo, Delta Amacuro, Distrito Federal, Falcón, Lara, Miranda and Sucre), Guyana, Suriname, Brazil (Pará, Amazonas, Acre, Rondônia, Maranhão, Pernambuco, Bahia, Mato Grosso, Goiás, Distrito Federal, Minas Gerais, São Paulo, Rio de Janeiro, Paraná and Santa Catarina), Cuba, Jamaica, Puerto Rico and Trinidad and Tobago. It occurs from elevations near sea level up to 2300 m, but is more frequently found at lower elevations. This species usually grows epiphytically on the twigs and small branches of trees and shrubs along water courses in humid conditions in otherwise xeric areas, including lowland deciduous forest and coastal scrub forest, with relatively dry winters. The species apparently colonises readily, and is often found growing in hedges, orchards and on ornamental trees and shrubs.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species may also be grown potted in small to tiny pots with an open, fast draining mix, but the roots are intolerant of continuous moisture and disturbance. *Temperature* warm. *Light* light shade. *Watering* allow to dry completely between watering. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. This species is susceptible to mealybug and scale insect infestations on both the plants and inflorescences, and to aphids on the flowers.

Comments: *Ionopsis utricularioides* is certainly a contender for the greatest mass of flowers produced relative to plant size. Although not always a heavy bloomer, this species can sometimes produce a cloud of beautiful white to lavender blossoms. Both the lovely, proportionately large lip and the much smaller petals can be overlaid with dark purple stripes and streaks. It has been observed that *I. utricularioides* can be hard to keep alive for long periods, but it seems likely that many individuals in nature have short lives as twig epiphytes. This species needs to be kept warm and should be allowed to dry out completely between waterings. It is susceptible to scale, mealybug and even aphid infestations. Despite these issues, the plants are highly rewarding, can be wonderfully floriferous, and are stunning when in bloom. Plants in cultivation often bloom between early autumn and mid-spring.



Figure 4.690 (above) A more deeply coloured *Ionopsis utricularioides* variety (Grower: Orchid Species Plus).

Figure 4.691 (facing page) This unidentified taxon is similar to *Ionopsis utricularioides*, but lacks the bilobed apex of the labellum (Grower: Mary Gerritsen).



Isabelia Barb.Rodr.

Publication: Barbosa Rodrigues, J., 1877, *Gen. Spec. Orchid.* 1: 75

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Isabelia virginalis* Barb.Rodr., 1877, *Gen. Spec. Orchid.* 1: 76.

Etymology: Named for Princess Imperial Isabel Cristina Leopoldina Augusta Micaela Gabriela Rafaela Gonzaga (1846–1921), eldest daughter of Dom Pedro II, Emperor of Brazil.

Heterotypic synonyms: *Neolauchea* Kraenzl., *Sophranitella* Schltr., × *Isanitella* Leinig.

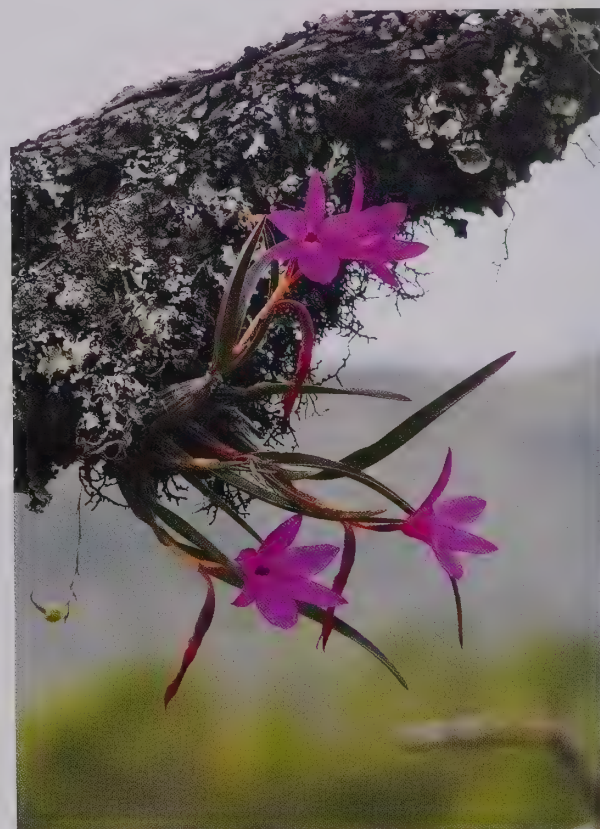
Profile: A genus of 3 epiphytic, rarely rupicolous, sympodial species and one natural hybrid, occurring in Brazil, northeastern Argentina and Paraguay.

General plant morphology: Sympodial, epiphytic or lithophytic, creeping, clustered or repent. *Pseudobulb* subspherical to fusiform, covered by papery or reticulate-fibrous bracts, leaf apical, unifoliate. *Leaf* linear to nearly terete. *Inflorescence* a raceme, subsessile, terminal. *Flower* 1–2 in number, resupinate, sepals and petals subsimilar, free, spreading, sepals widely elliptical to ovate, petals narrower and oblong or broader and elliptic, lip entire, obovate, subsaccate at base, column short, straight, pollinia 4 or 8.



Figure 4.692 (above) The finely coloured flower of *Isabelia pulchella* (Grower: Russ Varnado).

ISABELIA***Isabelia pulchella*** (Kraenzl.) C. Van den Berg & M. W. Chase**Publication:** *Lindleyana* 16: 109 (2001)**Etymology:** From the Latin *pulchellus* (beautiful, charming), in reference to the flowers**Homotypic synonym:** *Neolauchea pulchella* Kraenzl.**Heterotypic synonyms:** *Meiracyllium wettsteinii* Porsch, *Isabelia pulchella* var. *alba* Nunes, *Isabelia pulchella* f. *alba* Nunes ex C. Van den Berg & M. W. Chase.**Morphology:** *Plant* to 12 cm tall, branching, mat-forming, pendent with many roots hanging free, thin rhizome enclosed in bracts, pseudobulbs spaced 1–3 cm apart along rhizome. *Pseudobulb* to 1 cm tall by up to 0.8 cm wide, pyriform to ovoid, enclosed in papery bracts. *Leaf* 5–11 cm long by 0.3 cm wide, petiolate, linear, sub-terete, apex acute, lamina sulcate, flexible, leathery. *Inflorescence* a raceme, shorter to slightly longer than leaves, erect, slender. *Flower* 1–1.5 cm wide, single, spreading, campanulate.**Range, elevation and habitat:** *Isabelia pulchella* is endemic to Brazil, where it occurs in the southern and southeastern states of Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul. In Santa Catarina and Paraná state, this species is found in the woods of the Planalto tableland, but in other states it occurs in cool, damp montane forest. In nature this species blooms in the spring. Conservation status unknown.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles, or tree fern plaques or totems, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to pot culture due to the pendent/repent plant habit and its resentment of root disturbance. *Temperature* intermediate to intermediate-cool. *Light* light shade to medium shade. *Watering* water frequently, but ensure plant is dry before watering again. Reduce frequency of waterings somewhat during winter. *Humidity* average (50–60 %). *Air movement* good to brisk. *Propagation* easily by division, or by seed. *Fertilise* at 1/4 strength weekly, but reduce the amount of fertiliser applied during winter.**Comments:** Long known as *Neolauchea pulchella*, many plants in collections are still labelled as such. *Isabelia pulchella* is a wonderful, relatively common, easy to grow species that can make a beautiful specimen plant. The smallish flowers are brilliantly coloured, held singly on thin, erect stems, and can be produced in profusion. Since the plants send out roots at every pseudobulb, it is an easy plant to share by simply breaking-off divisions of three or more growths. In cultivation, flowers can be expected in mid-autumn to early winter, lasting for 7–10 days.**Figure 4.693 (above)** A pair of *Isabelia pulchella* blooms (Grower: Cindy Hill).**Figure 4.694 (above)** An impressive arrangement of *Isabelia pulchella* on a columnar mount (Grower: Howard Gunn).

ISABELIA*Isabelia violacea* (Lindl.) C. Van den Berg & M. W. Chase**Publication:** *Lindleyana* 16: 109 (2001)**Etymology:** From the Latin *violaceus* (violet), referring to the flower colour.**Homotypic synonyms:** *Sophronitis violacea* Lindl., *Sophronia violacea* (Lindl.) Kuntze, *Sophronitella violacea* (Lindl.) Schltr.**Heterotypic synonyms:** *Sophronitis violacea* var. *alba* Barb. Rodr., *Isabelia violacea* f. *alba* (Barb. Rodr.) F. Barros.**Morphology:** Plant 5–12 cm tall, creeping, branching, clumping, erect. *Pseudobulb* 1.5–3 cm long by 0.3–0.8 cm wide, oblong-fusiform to narrowly ovoid to pyriform, enclosed in persistent papery sheaths, erect. *Leaf* 3–9 cm long by 0.3–0.5 cm wide, narrowly linear, apex acute to obtuse, lamina erect to suberect, flexible, leathery, sometimes arcuate. *Inflorescence* a raceme, peduncle (excluding pedicel) 0.4–0.9 cm long, erect. *Flower* 2–5 cm wide, 1–2 in number, simultaneous, widely spreading to somewhat campanulate. Flowers vary slightly in width of segments and slightly by colour tone.**Range, elevation and habitat:** *Isabelia violacea* is a locally common Brazilian endemic, found in the states of Bahia, Goiás, Distrito Federal, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina and Rio Grande do Sul. It occurs at elevations ranging from near sea level to 1200 m. It grows as an epiphyte in small trees along streams in montane cloud forest, and on lichen covered branches in seasonally dry forest (sometimes on *Podocarpus*) with rainy summers and nightly mists during the dry winter. It also grows as a lithophyte in debris-filled crevices, occasionally forming large colonies. This species blooms in August and September in nature.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species may also be potted in small pots using moss or a fine bark mix, but this species is best grown on a mount as it resents root disturbance. If divisions are made, or if plants require remounting, do so when in active growth. *Temperature* intermediate. *Light* bright diffused to light shade. *Watering* water frequently, but ensure plant is dry before watering again. Keep plants somewhat drier in winter. *Humidity* average. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly.**Comments:** While most growers know this species as *Sophronitella violacea*, recent genetic studies have shown that it belongs in the genus *Isabelia*. Interestingly, there is a rare natural hybrid with *I. virginialis* called *I. × pabstii* (Leinig) C. Van den Berg & M. W. Chase. The brilliantly coloured flowers of *I. violacea* can be produced in profusion on larger plants, but only last about a week in perfection. The plants are attractive as well, with**Figure 4.695 (above)** A pair of *Isabelia violacea* blooms seen in situ in Brazil (Photo: Leonardo Desordi Lobo).**Figure 4.696 (above)** *Isabelia violacea* growing epiphytically amongst lichens on a tree in Brazil (Photo: Ron Kaufmann).

ISABELIA

narrow, ovoid pseudobulbs enclosed in persistent, papery bracts, topped by an even narrower dark green leaf. Plants in cultivation flower in late autumn to early winter.



Figure 4.697 (above) The *Isabelia violacea* flower (Grower: Mary Gerritsen).
 Figure 4.698 (middle) Two *Isabelia violacea* flowers (Grower: Carolyn Salmon).
 Figure 4.699 (below) *Isabelia violacea* growing in situ as a branch epiphyte in Brazil (Photo: Leonardo Desordi Lobo).

ISABELIA

Isabelia virginalis Barb.Rodr.

Publication: *Gen. Spec. Orchid.* 1: 76 (1877)

Etymology: From the Latin *virginalis* (maidenly, virginal, purest white), referring to the colour of the flowers.

Morphology: *Plant* to 7 cm tall, creeping, branching, mat-forming, rhizome and pseudobulbs enclosed in net-like sheaths. *Pseudobulb* to 1 cm tall by up to 0.8 cm, ovoid, leaf apical, unifoliate. *Leaf* 4–6 cm long by 0.1 cm wide, nearly terete, apex acute, lamina narrowly sulcate, erect, flexible, leathery. *Inflorescence* a raceme, much abbreviated, erect to suberect, terminal. *Flower* 0.6–0.8 cm wide, to 2 in number, resupinate, spreading widely to slightly campanulate.

Range, elevation and habitat: *Isabelia virginalis* occurs in Brazil (states of Minas Gerais, Rio de Janeiro, São Paulo and Paraná), Paraguay and northern Argentina (province of Misiones). It grows in coastal mountain areas in cool, misty forest as an epiphyte on small twigs and branches, and as a lithophyte in debris-filled crevices of eroded limestone. In Minas Gerais it is found at elevations to 1500 m. In Paraguay and northern Argentina, *I. virginalis* is a common epiphyte in semi-deciduous forest at 200–700 m. This species blooms in the autumn to winter in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to pot culture due to the climbing and branching habit of the plant, and its dislike of continuous moisture. Additionally, this species detests root disturbance. *Temperature* intermediate. *Light* light shade. *Watering* ensure that the plant is dry before watering. *Humidity* average (50–60 %) to high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly, reducing frequency during winter.

Comments: *Isabelia virginalis* must be one of the cutest miniature species, and is a popular and favourite selection of many growers. The onion-like plant has pseudobulbs enclosed in a wonderful, net-like mesh, a character that may be unique in the orchid family, and each bears a single, erect, thread-like leaf. Often occurring in pairs, the whitish to soft pink flowers are attractively offset by the burgundy of the anther cap and underside of the column. This species produces a rare natural hybrid with *I. violacea*, called *I. × pabstii* (Leinig) C. Van den Berg & M.W.Chase, where their ranges overlap. The flowers of *I. virginalis* are usually produced in mid- to late autumn in cultivation, and last 7–10 days.



Figure 4.700 (above) Mounted *Isabelia virginalis* plants in flower (Grower: Judy Carney).



Figure 4.701 (above) Flowers of *Isabelia virginalis* against a foil of net-like pseudobulb sheaths (Grower: Cordelia Wong).



Figure 4.702 (above) A veritable carpet of *Isabelia virginalis* plants cover the trunk and branches of a tree in Brazil (Photo: Leonardo Desordi Lobo).
Figure 4.703 (below) Wild, epiphytic growths of *Isabelia virginalis* plants in detail, seen here on a tree trunk (Photo: Leonardo Desordi Lobo).

Jumellea Schltr.

Publication: Schlechter, F. R. R., 1914, *Orchideen*: 609

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Angraecinae

Type species: *Jumellea recurva* (Thouars) Schltr., 1915, *Beih. Bot. Centralbl.* 33(2): 430.

Etymology: Named for Professor Henri Lucien Jumelle (1866–1935), a French phytologist who collected in Madagascar.

Profile: A genus of approximately 60 species occurring in Madagascar, Comoros Islands, Mascarene Islands, and tropical Africa.

General plant morphology: Monopodial, epiphytic or lithophytic, leaves distichous or forming a fan, with imbricate leaf bases, often branching at base. *Leaf* usually strap-shaped, obtuse, apex unequally bilobed. *Inflorescence* a raceme, often several to many simultaneous inflorescences, lateral, axillary. *Flowers* single, resupinate, dorsal sepal somewhat reflexed, lateral sepals connate at base below spur, sepals and petals usually deflexed, lip entire, narrow or clawed at base, often sagittate, not encircling the column, spur slender, long or short, column with two arms, pollinia 2, flowers usually white, nocturnally fragrant.



Figure 4.704 (above) A pair of *Jumellea densefoliata* flowers, with roots and leaves to the rear (Grower: Unknown).

JUMELLEA

Jumellea densefoliata Senghas

Publication: *Adansonia*, n.s., 4: 308 (1964)

Etymology: From the Latin *densus* (thick) and *foliatus* (leaved), having dense foliage.

Morphology: *Plant* to 15 cm tall, to 14 cm wide, rarely larger, erect, branching at base, sometimes freely, to form clumps, leaves numerous. *Leaf* 5–7 cm long by 1–2 cm wide, sessile, ligulate, succulent, fleshy, leathery, rugose. *Inflorescence* a raceme, to 4 cm long, suberect to spreading. *Flower* to 4 cm tall, single, spreading widely, base of dorsal sepal with undulate margins, lip sagittate, basal margins undulate, spur proportionately long, to 13 cm.

Range, elevation and habitat: *Jumellea densefoliata* grows as an epiphyte, often amongst mosses and lichens, in evergreen forest, and also as a lithophyte on shaded rocks in humid *Uapaca* forest in the central highlands of Fianarantsoa province, Madagascar. It occurs at elevations of 1200–1660 m. The region is subject to fires, has a distinctly cool to intermediate night temperature depending on the elevation, and seasonal rainfall, although fog and mist are common through the drier periods of the year. This species blooms between September and November in nature. Whilst not uncommon, *J. densefoliata* is likely threatened by continual habitat degradation in Madagascar.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. This species may also be potted in medium bark mix, but use the smallest pots feasible. *Temperature* intermediate. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet for most of the year, but reduce watering frequency in winter. *Humidity* high. *Air movement* good to brisk. *Propagation* sometimes by division, or seed. *Fertilise* at 1/4 strength weekly, but reduce frequency or withhold during winter.

Comments: The type species of the genus, *Jumellea densefoliata* is also one of the most attractive. Extremely handsome when well grown, the plants have many layers of dark-green, rugose leaves with bilobed tips, and can produce numerous offsets from the original plant, forming wonderful clumps. The flowers are fairly typical in shape for the genus, but the base of the lip and dorsal sepal are noticeably undulate along the margins. Appearing in mid-winter to early spring in cultivation, though possibly at other times, the blossoms have a delightful nocturnal fragrance. Occasionally plants may be seen in collections under the name *J. pandurata*, a name under which this species was once sold, but which actually belongs to a related species.



Figure 4.705 (above) *Jumellea densefoliata* flowers have very long spurs, well exhibited on a mount (Grower: Jacob Knecht).



Figure 4.706 (above) *Jumellea densefoliata* plants growing amongst lichens in Madagascar (Photo: Johan Hermans).

Kefersteinia Rchb.f.

Publication: Reichenbach, H. G., 1852, *Bot. Zeitung (Berlin)* 10: 633

Subtribe: Epidendroideae

Tribe: Maxillariaceae

Subtribe: Zygopetalinae

Type species: *Kefersteinia graminea* (Lindl.) Rchb.f., 1852, *Bot. Zeitung (Berlin)* 10: 634.

Etymology: Named for Herr Keferstein, a 19th century German orchid grower from Kröllwitz who, at the time, possessed one of the finest orchid collections in Germany.

Heterotypic synonym: *Senghasia* Szlach.

Profile: A genus of approximately 70 epiphytic species found in southern Mexico, Guatemala, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Venezuela, French Guiana and Suriname. *Kefersteinia* are often found on shady tree trunks and large branches along streams from warm tropical evergreen forest to cool wet montane forest at elevations of 100–2500 m. The majority of species are found in premontane forest at 900–1500 m altitude.

General plant morphology: Sympodial, clumping, erect, branching at base, fan shaped growths, roots large, fleshy, numerous. *Pseudobulb* absent, leaves (including leafy bracts) 3–6 in number, distichous, bases imbricate. *Leaf* and leafy bracts linear to elliptic-oblongate, conduplicate, often completely folded at base, thinly textured, flexible. *Inflorescence* a raceme, shorter than leaves, one to many, often simultaneous, single-flowered inflorescences, erect to laxly pendent, slender, lateral, usually axillary. *Flower* single, resupinate, widely spreading to campanulate, sepals and petals free, usually subsimilar, lip unlobed to three-lobed, clawed, often transversely folded to form a skirt, callus prominent, basal, column fleshy, usually semi-terete, straight, winged, short column foot, pollinia 4. Flowers are usually white to greenish-yellow to yellow, variously spotted with purple and brown. This genus is taxonomically confusing, with many similar species.

General culture notes: *Substrate* pot in a fine to medium bark mix or New Zealand *Sphagnum* moss. The prolific, large, fleshy roots of the plants often fill the pots and push the base of the plant up above the edge of the pot. Plants may also be grown mounted on large flat pieces of cork bark, rough wood shingles or tree fern plaques. *Temperature* various, see species accounts, but generally well-suited to intermediate to intermediate-cool conditions. *Light* light shade. *Watering* keep moist, well drained, not wet. It is best to water early in the day so that moisture in the leaf bases has a chance to dry, thereby reducing the incidence of rot or leaf spotting. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: As is often the case in horticulture, plants of *Kefersteinia* may grow larger in cultivation than in nature.



Figure 4.707 (right) Although *Kefersteinia pseudopellita* cannot be considered a miniature plant, this dwarf species illustrates well the floriferous nature of many in this genus (Grower: Steve Beckendorf).

KEFERSTEINIA

Kefersteinia bertoldii Jenny

Publication: *Orchidee (Hamburg)* 36: 184 (1985)

Etymology: Named for Bertold Würstle of Germany, who first collected this species in 1981.

Homotypic synonym: *Senghasia bertoldii* (Jenny) Szlach. & Romowicz.

Morphology: *Plant* 8–15 cm tall. *Leaf* to 15 cm long by 3.5 cm wide, elliptic to obovate, apex acute to obtuse, lamina suberect to slightly spreading. *Inflorescence* a raceme, to 5 cm long, lax, usually descending to pendent. *Flower* 2.2–2.6 cm wide, spreading, campanulate, column barely winged.

Range, elevation and habitat: *Kefersteinia bertoldii* has been found in Colombia and Peru (departments of Huánuco and Junín) at elevations of about 2000 m, where it grows in wet montane forest. It is quite likely that the species will be found in Ecuador. This species blooms between January and April in nature. It is listed as endangered on the IUCN Red List.

Culture recommendations: See general guidance for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A beautiful little species, *Kefersteinia bertoldii* has pleasantly shaped flowers with full segments that overlap at the base, and which at times can be produced in wonderful profusion. A somewhat taxonomically confused species, Harding (2008) comments on its resemblance to both *K. vollesii* Jenny and *K. jarae* D.E.Benn. & Christenson. The images of *K. vollesii* (q.v.) show that the stance of the bloom, the narrow segments and the slight basal constriction, along with the deflection of the apical half of the lip, appear quite distinct from *K. bertoldii*. *Kefersteinia jarae* is a close relative of *K. bertoldii*, on the other hand, sharing its barely winged column, but it is easily distinguished by its lip, which has a distinct pinch midway along its length. *Kefersteinia bertoldii* blooms in the autumn in cultivation, and occasionally at other times.



Figure 4.708 (above) The handsome, full flower of *Kefersteinia bertoldii* is usually produced close to the substrate (Grower: Marni Türköl).

KEFERSTEINIA***Kefersteinia excentrica*** Dressler & Mora-Ret.**Publication:** *Orquídea (Mexico City)*, n.s., 13: 261 (1993)**Etymology:** From the Latin *excentricus* (one sided, off-centre), referring to the position of the lip, which is not balanced in the centre.**Morphology:** *Plant* 10–15 cm tall. *Leaf* 10–15 cm long by 1.1–1.5 cm wide, oblanceolate to narrowly elliptic, apex acute, lamina suberect to slightly spreading, margins of leaf blade slightly recurved. *Inflorescence* a raceme, to 5 cm long, lax, descending to pendent. *Flower* 2.5–3 cm wide, spreading, campanulate.**Range, elevation and habitat:** *Kefersteinia excentrica* occurs in Costa Rica (provinces of Alajuela and Cartago) and Panama (province of Chiriquí), where it grows in wet, lower montane forest. It often occurs just 2–5 m above the ground on mossy tree trunks, generally in rather shady situations at 1100–1400 m altitude. This species blooms in November to March in nature. No information could be found regarding its conservation status.**Culture recommendations:** See general guidance for the genus. *Temperature* intermediate.**Comments:** This species has an unusual lip that is slightly off-centre, a distinct feature in a genus with many similar and often taxonomically confused species. As such, this taxon is readily identifiable! As with *Kefersteinia bertoldii*, *K. excentrica* is at its most attractive when grown on a mount due to the pendent nature of the inflorescence. Whilst not readily available, this species can be obtained from some vendors with a little diligence. Flowering tends to occur in mid-autumn to mid-winter in cultivation.**Figure 4.709 (above)** Slender scapes of *Kefersteinia excentrica* bearing relatively large blooms (Photo: Daniel Jimenez).**Figure 4.710 (above)** The spreading flower of *Kefersteinia excentrica* in detail (Grower: Marni Turkel).

KEFERSTEINIA***Kefersteinia jarae*** D.E.Benn. & Christenson**Publication:** *Brittonia* 46: 34 (1994)**Etymology:** Named in honour of the original collector of the species, Enrique Jara Piñan.**Homotypic synonym:** *Senghasia jarae* (D.E.Benn. & Christenson) Szlach. & Romowicz.**Morphology:** *Plant* to 9.5 cm, clumping. *Leaf* to 8 cm long by 1.4 cm wide, obovate, apex acute, lamina suberect to spreading. *Inflorescence* a raceme, to 3 cm long, multiple simultaneous inflorescences, suberect to descending, lateral, axillary, from under or between leafy bracts. *Flower* 2.2–2.5 cm wide, spreading, campanulate, lip tubular, pinched midway with outer margins nearly touching, interior and callus granulate, column barely winged.**Range, elevation and habitat:** *Kefersteinia jarae* occurs in Peru at elevations near 900 m, where it grows in wet, lower montane forest. The type specimen was collected in the department of Huánuco, province of Leoncio Prado, above Tingo Maria. To date, this is the only known locality. Flowering has been recorded as occurring between October and December, as well as between March and May. It is listed as endangered on the IUCN Red List.**Culture recommendations:** See general guidance for the genus. *Temperature* warm-intermediate.**Comments:** *Kefersteinia jarae* is a truly charming species, with flowers bearing a tubular, dark maroon lip that is pinched distinctly midway such that the margins of the lip nearly touch one another at that point. It is interesting to note that the characteristic pinch in the lip is illustrated in the drawing that accompanies the original description, although it is not mentioned in the text! Like so many of its close relatives, it can be a prolific bloomer, and the descending to pendent spikes look their best when the plant is grown mounted. Harding (2008) mentions the similarity of this species to *K. bertoldii* (q.v.), and notes that Gerlach and Neudecker (1994) have *K. jarae* as a synonym of *K. pusilla* C.Schweinf. However, in the original description of *K. pusilla*, Schweinfurth describes the lip as “slightly constricted on each side near the base (subpandurate).” Neither Schweinfurth’s description nor his illustration depict anything resembling the near-tubular, pinched lip that is so characteristic of *K. jarae*. It appears that the photo of *K. pusilla* in Harding (2008) may be incorrectly identified, most likely representing a light-coloured form of *K. jarae*. *Kefersteinia jarae* is rare in cultivation, but occasionally surfaces in the trade. Flowering in cultivation tends to be in mid-summer, but is likely to occur at other times.**Figure 4.711 (above)** A trio of *Kefersteinia jarae* blooms (Grower: Howard Gunn).

KEFERSTEINIA

Kefersteinia lactea (Rchb.f.) Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 36: 613 (1918)

Etymology: From the Latin *lacteus* (milky white), referring to the colour of the flowers.

Homotypic synonyms: *Zygopetalum lacteum* Rchb.f., *Chondrorhyncha lactea* (Rchb.f.) L.O.Williams, *Senghasia lactea* (Rchb.f.) Szlach. & Romowicz.

Morphology: *Plant* to 15 cm tall. *Leaf* 8–12 cm long, occasionally to 15 cm, by 1–1.2 cm wide, narrowly elliptic, apex acute, acuminate, lamina suberect. *Inflorescence* a raceme, to 2 cm long, ascending to laxly pendent. *Flower* to 2 cm wide, spreading, campanulate.

Range, elevation and habitat: *Kefersteinia lactea* occurs in Costa Rica (provinces of Alajuela, Cartago, Heredia, Puntarenas and San José) and Panama (provinces of Chiriquí, Panamá and Veraguas) at elevations of 750–1200 m, where it grows as an uncommon epiphyte in low to mid-montane rainforest, usually in wet shaded and wet situations. This species generally blooms between February and August in Costa Rica.

Culture recommendations: See general guidance for the genus. *Temperature* warm-intermediate to intermediate.

Comments: A lovely plant with pleasingly shaped, china white flowers, *Kefersteinia lactea* was fairly recently separated by Pupulin (2004) into two separate species. The plants from southern Mexico and Guatemala, which are stouter and larger (to 25 cm), have slightly bigger flowers and a more speckled lip, are now known as *K. tinschertiana* Pupulin. The species now recognised as *K. lactea* only occurs in Costa Rica and Panama. All species in this genus will grow well in pots, and *K. lactea* is no exception, but species such as this, with lax inflorescences, display their flowers to the best advantage when mounted. Flowering in cultivation peaks in mid-summer, but one can expect blooms at other times of year also.



Figure 4.712 (above) The flower of *Kefersteinia lactea* from Costa Rica (Grower: Howard Gunn).



Figure 4.713 (above) The flower of *Kefersteinia lactea* from Costa Rica (Grower: Howard Gunn).

KEFERSTEINIA

Kefersteinia ocellata Garay

Publication: *Orquideologia* 4: 83 (1969)

Etymology: From the Latin *ocellatus* (like a small eye, gem), referring to the distinctive markings on the base of the lip.

Homotypic synonym: *Senghasia ocellata* (Garay) Szlach.

Morphology: *Plant* to 15 cm tall. *Leaf* to 15 cm long by 2 cm wide, obovate, apex acute, apiculate, lamina erect to slightly spreading. *Inflorescence* a raceme, to 4 cm long, peduncle to 3 cm, suberect to pendent. *Flower* 2.5–3 cm long, widely-spreading. Flowers somewhat variable in colour, from green to yellow, and also in the degree of patterning. Some forms have no markings on the petals and sepals, though the lip is still marked with the eye-spots after which the species is named.

Range, elevation and habitat: *Kefersteinia ocellata* occurs in Colombia (department of Antioquia) and Ecuador (provinces of Carchi, Cotopaxi, Imbabura, Los Ríos and Pichincha) at elevations of 600–1650 m, where it grows as a locally common epiphyte in rainforest and wet montane cloud forest. In nature it blooms throughout the year, but particularly between December and May.

Culture recommendations: See general guidance for the genus. *Temperature* warm-intermediate to intermediate.

Comments: Perhaps the most distinctive and popular of all the species of the genus featured here, *Kefersteinia ocellata* has greenish to yellowish flowers that are wonderfully streaked, striped and spotted with colour. The small, rounded and often spotted side-lobes of the lip have an eye-like appearance, giving the blooms a cheerful expression overall. Flowering in cultivation tends to be intermittent and frequent, with blooms most often seen between late spring and early winter.



Figure 4.714 (above) The flower of *Kefersteinia ocellata* in profile (Grower: White Oak Orchids).



Figure 4.715 (above) A *Kefersteinia ocellata* flower from the front (Grower: Marni Turkel).

Figure 4.716 (overleaf) A more vertically orientated flower of *Kefersteinia ocellata* in detail (Grower: White Oak Orchids).



Kraenzlinella Kuntze

Publication: Kuntze, C. E. O., 1903, *Lex. Gen. Phan.*: 310

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Pleurothallidinae

Type species: *Kraenzlinella tunguraguae* (F. Lehm. & Kraenzl.) Kuntze, 1904, *Lex. Gen. Phan.*: 310.

Etymology: In honour of Friedrich (Fritz) Wilhelm Ludwig Kränzlin (1847–1934), the noted German orchid taxonomist.

Homotypic synonym: *Otopetalum* F. Lehm. & Kraenzl. (nom. Illeg.)

Profile: A genus currently of 9 species, found in Mexico and south to Suriname and Bolivia. It is found in scrub, oak and oak-pine forest to approximately 500 m altitude, and in cloud forest at elevations up to 2500 m.

General plant morphology: Sympodial, epiphytic, lithophytic or terrestrial, caespitose to repent. *Ramicaul* shorter than leaf, stout, enclosed by tubular, loose or closely appressed sheaths, unifoliate. *Leaf* sessile, narrowly to broadly elliptic, apex acute to obtuse, minutely notched, apiculate, lamina thickly coriaceous to semi-terete. *Inflorescence* a raceme, usually multiflowered, usually longer than leaf, terminal from apex of ramicaul, without an annulus. *Flower* sepals free to connate at base, fleshy, petals more or less ovate, acute, lip thick, rigid, more or less flexibly attached to apex of column foot, pollinia 2.



Figure 4.717 (above) The dwarf *Kraenzlinella anfracta* is likely the most common species of the genus seen in cultivation (Grower: Marni Turkel).

KRAENZLINELLA

Kraenzlinella phrynoglossa (Luer & Hirtz) Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 95: 258 (2004)

Etymology: From the Greek *phrynos* (toad) and *glossa* (tongue), in reference to the warty lip of this species.

Homotypic synonym: *Pleurothallis phrynoglossa* Luer & Hirtz.

Morphology: *Plant* to approximately 10 cm tall, erect, occasionally branching, creeping to shortly repent, 1 cm between ramicauls, occasionally more. *Ramicaul* 1–1.5 cm long, stout, erect, enclosed in sheaths. *Leaf* 8 cm long by 3 cm wide, sessile, elliptical-oblong, apex obtuse to rounded, lamina suberect to spreading, rigid, fleshy, very thick, to 0.5 cm, leathery, suffused with reddish or purplish. *Inflorescence* a raceme, peduncle to 5 cm, distichous, ascending to descending. *Flower* up to 3–3.5 cm, simultaneous, up to 4 open at once, resupinate, not spreading widely, campanulate, lip distinctive, large, clawed, warty.

Range, elevation and habitat: *Kraenzlinella phrynoglossa* comes from Azuay Province, south of Cuenca, Ecuador. No habitat or elevation data is available, but from the appearance of the succulent, hard-leaved plants, it presumably comes from a seasonally dry, montane area. This species is listed as data deficient on the IUCN Red List.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, with little or no New Zealand *Sphagnum* moss. This species is probably not well-suited to potted culture due to its widely spreading rhizome and intolerance of continuous moisture. *Temperature* cool. *Light* bright diffuse to light shade. *Watering* water frequently, but allow to dry briefly before watering again. *Humidity* average. *Air movement* good to brisk. *Propagation* by division or seed. This rare species should be propagated whenever possible. *Kraenzlinella phrynoglossa*, like most pleurothallids, is prone to bean yellow mosaic virus (BYMV). Good aseptic technique should be used when repotting and care should be taken to prevent aphid infestations as aphids are the vector for BYMV.

Comments: A very strange orchid indeed, *Kraenzlinella phrynoglossa* has flowers that most people would say are more fascinating than beautiful. Although the narrow blooms do not open widely, the distinctive, warty lip is prominent. Perhaps the most amazing thing about this species is its incredibly succulent leaves, without a doubt among the thickest leaves proportionately of the orchid family. It is a rare species in cultivation, but it is truly a collector's item for those who enjoy oddities. The only cultivated plant of this species observed by the authors blooms in the late summer.



Figure 4.718 (above) The sombre, fascinating flowers of *Kraenzlinella phrynoglossa* (Grower: Hanging Gardens).



Figure 4.719 (above) The flowers of *Kraenzlinella phrynoglossa* are handsomely veined a deep red (Grower: Hanging Gardens).

Leochilus Knowles & Westc.

Publication: Knowles, G. B. & F. Westcott, 1838, *Fl. Cab.* 2: 143

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Leochilus oncidoides* Knowles & Westc., 1838, *Flor. Cab.* ii. 143.

Etymology: From the Greek *leios* (smooth) and *cheilos* (lip), referring to the lip callus of the type species, as opposed to the tuberculate-callus lip of most *Oncidium*.

Heterotypic synonyms: *Cryptosanus* Scheidw., *Papperitzia* Rchb.f., *Leiochilus* Benth., *Hybochilus* Schltr., *Goniochilus* M.W.Chase.

Profile: A genus of approximately 12 species, occurring in southern Florida, Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Venezuela, Brazil, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, Leeward Islands, Windward Islands and Trinidad and Tobago. It grows at elevations from near sea level to 2000 m, usually in seasonally dry habitat, where they often grow on small branches and twigs. Most species are epiphytes, but individuals may occur lithophytically and terrestrially.

General plant morphology: Small, clumping to long repent, erect. *Pseudobulb* ellipsoid, laterally compressed, often ribbed, subtended by several leafy bracts, leaves apical, 1–2 in number. *Leaf* oblong-elliptic, leathery. *Inflorescence* a raceme or panicle, erect to pendent, lateral from base of recent pseudobulb, sometimes axillary between leafy bracts. *Flower* resupinate, spreading, sepals and petals subsimilar, sub-equal, often keeled on dorsal surface, dorsal sepal and petals free, lateral sepals free or fused at base, lip unlobed with transverse ridge, column short, footless, winged near base, pollinia 2.



Figure 4.720 (above) A pair of cute little *Leochilus carinatus* flowers (Grower: MarniTurkel).

LEOCHILUS

Leochilus carinatus (Knowles & Westc.) Lindl.

Publication: *Edwards's Bot. Reg.* 28(Misc.): 23 (1842)

Etymology: From the Latin *carinatus* (keeled, having a keel-like edge), referring to the form of the pseudobulb.

Homotypic synonym: *Oncidium carinatum* Knowles & Westc.

Morphology: *Plant* to 15 cm tall, clumping but with runners to 30 cm between small clusters of pseudobulbs, forming tangles, vine-like. *Pseudobulb* to 2.8 cm tall by 1.2 cm wide, sub-orbicular to ovoid in profile, laterally compressed, edges carinate, leaves apical, 1–2 in number, 1–2 leafy bracts. *Leaf* to 12 cm long by up to 1.4 cm wide, elliptic to lanceolate, apex obtuse to round, lamina leathery. *Inflorescence* a raceme to few-branched panicle, to 90 cm long, 1–2 simultaneous inflorescences, suberect to pendulous, flowers distal, frequently forming adventitious plantlets along nodes after flowering. *Flower* 1.5–2 cm long, many in number, several open at once, successive, spreading, campanulate, fragrant. Pattern and shape of callus on lip may vary.

Range, elevation and habitat: *Leochilus carinatus* grows in the central and eastern regions of the Sierra Volcanica Transversal of Mexico, in the states of Veracruz, México and Morelos, at elevations of 1000–2300 m. It is found in primary tropical deciduous forest, usually near water courses, often forming tangled masses in outer branches of trees and shrubs. This species is sometimes found on cultivated plants such as coffee, hibiscus, *Erythrina* and guava, and usually blooms from June to November in nature.

Culture recommendations: *Substrate* mount on plaques of cork bark, wood shingles or tree fern, with little or no New Zealand *Sphagnum* moss. This species is not well-suited to potted culture due to its rambling, vining habit. *Temperature* intermediate. *Light* light shade. *Watering* water frequently from spring through mid-autumn, reducing watering frequency in late autumn. Mist roots every 7–10 days during winter to keep plant from desiccation. *Humidity* high during growing season and average during dormancy. *Air movement* good to brisk. *Propagation* easily by division, adventitious plantlets (keiki) or seed.

Comments: *Leochilus carinatus* is easy to grow, readily available and simple to propagate. The plants travel by runners through trees and bushes in nature, and will do the same in culture. In fact, the plants can at times be difficult to extricate without breaking the runner-like rhizome, but these pieces may be used to propagate and spread the taxon between collections. The authors observed *L. carinatus* in the state of Mexico, growing in, through and around small shrubs. Though easily overlooked, once spotted the plants were found to be rather common. The lovely flowers have a pleasing fragrance when they bloom between summer and early autumn in cultivation.



Figure 4.721 (above) Blooms of *Leochilus carinatus* in detail (Grower: Mary Gerritsen).



Figure 4.722 (above) The open inflorescence of *Leochilus carinatus* bearing many flowers (Grower: Steve Beckendorf).

LEOCHILUS

Leochilus crocodiliceps (Rchb.f.) Kraenzl.

Publication: *Pflanzenr.*, IV, 50(80): 300 (1922)

Etymology: From *crocodilis* (crocodile) and *cephalus* (head), like the head of a crocodile, in reference to the shape of the anther cap.

Homotypic synonym: *Oncidium crocodiliceps* Rchb.f.

Heterotypic synonym: *Leochilus ampliflorus* Schltr.

Morphology: *Plant* to 15 cm tall, slowly creeping, pseudobulbs clustered, branching, roots long, thin. *Pseudobulb* 1.2–3.5 cm tall by 1–2.5 cm wide, slightly laterally compressed, ribbed, subtended by leafy bracts, leaf apical, 1–2 in number. *Leaf* to 12 cm long by up to 2.2 cm wide, elliptic-lanceolate to oblong-ligulate, apex obtuse, lamina erect to suberect, leathery. *Inflorescence* a raceme, to 12 cm long, suberect to pendent, slender, lateral from base of new immature pseudobulb. *Flower* 2.5 cm long, to 6 or rarely more in number, simultaneous, spreading, often slightly nodding, fragrant.

Range, elevation and habitat: This western Mexican endemic has a limited range, being found only in a small area of the neighbouring states of Colima and Jalisco. It often grows on twigs high in the canopy in tropical deciduous forest, in secondary woodland, oak forest, pine-oak forest and on scrubby trees along canyon streams at elevations of 900–1700 m. It is sometimes found on cultivated plants such as coffee and guava. Though usually epiphytic, plants have occasionally been found growing on rocks in stream valleys. This species blooms between June and October in nature, although it has been seen in bloom as early as March.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using a small amount of moss around the roots. May also be grown potted in a well-drained open mix; moss is not recommended given the need for a dry rest. Best displayed mounted due to the descending inflorescence. *Temperature* intermediate from mid-spring to mid-autumn, cooler in winter, with day temperatures of 25–26 °C (76–79 °F) and 6–9 °C (43–46 °F) at night. *Light* light shade. *Watering* water frequently from spring to mid-autumn, reducing frequency in late autumn. Mist roots every 7–10 days during winter to prevent desiccation. *Humidity* high during growing season and average during dormancy. *Air movement* good to brisk. *Propagation* by division or seed. Propagation and dispersal of this species is encouraged. *Fertilise* at 1/4 strength weekly, withholding during winter.

Comments: One of the most beautiful and desirable species of the genus, *Leochilus crocodiliceps* is unfortunately quite rare in cultivation. This species has a very limited range in western Mexico, and because plants from this country are hard to obtain, it is important that species such as this are propagated if obtained. The lovely flowers have a wonderful fragrance, and appear during summer and early autumn in cultivation.



Figure 4.723 (above) The *Leochilus crocodiliceps* flower is both beautiful and fragrant (Grower: Howard Gunn).



Figure 4.724 (above) *Leochilus crocodiliceps* is rare in cultivation, but a wonderful subject (Grower: Howard Gunn).

LEOCHILUS

Leochilus labiatus (Sw.) Kuntze

Publication: *Revis. Gen. Pl.* 2: 656 (1891)

Etymology: From the Latin *labia* (lip), referring to the proportionately large labellum.

Homotypic synonyms: *Epidendrum labiatum* Sw., *Liparis labiata* (Sw.) Spreng., *Oncidium labiatum* (Sw.) Rchb.f.

Heterotypic synonyms: *Leochilus cochlearis* (Lindl.) Lindl., *Rodriguezia cochlearis* Lindl., *Oncidium lansbergii* Rchb.f., *Oncidium depauperatum* F.Lehm. & Kraenzl., *Cyrtorchilum depauperatum* (F.Lehm. & Kraenzl.) Kraenzl., *Leochilus depauperatus* (F.Lehm. & Kraenzl.) Kraenzl., *Leochilus gracilis* Schltr.

Morphology: Plant to 9 cm tall, clumping. *Pseudobulb* to 2 cm tall by up to 0.9 cm wide, ellipsoid-ovoid, compressed, carinate, often suffused with reddish brown, partially enclosed in leafy bracts, leaf apical, unifoliate. *Leaf* to 7 cm long by 2 cm wide, subpetiolate, elliptic-lanceolate to ligulate, apex obtuse to nearly acute and obliquely bilobed, lamina erect to spreading, leathery, suffused with reddish brown to purple. *Inflorescence* a raceme to few branched panicle, to 25 cm long, flowers towards apex, 1–2 simultaneous inflorescences, erect to suberect. *Flower* to 1.5 cm long, usually 6–7 in number, but occasionally up to 45, basically simultaneous, spreading, sweetly fragrant. Flowers vary in colour from light yellow to pale green, in pattern from striped to spotted or suffused with reddish brown, and in the amount of reddish brown spotting at the base of the lip.

Range, elevation and habitat: A very widespread and common species, *Leochilus labiatus* is found in southern Florida, southern Mexico, Belize (district of Stann Creek), Guatemala (department of Alta Verapaz), El Salvador (departments of San Salvador and Santa Ana), Nicaragua (departments of Atlántico Norte, Atlántico Sur, Jinotega, Nueva Segovia, Río San Juan and Zelaya), Honduras, Costa Rica (provinces of Alajuela, Cartago, Heredia and Limón), Panama (provinces of Chiriquí and Coclé), Colombia, Ecuador (provinces of El Oro, Los Ríos, Manabí and Pichincha), Venezuela (states of Aragua, Bolívar, Distrito Federal and Miranda), Brazil (states of Pernambuco and Sergipe), Cuba, Hispaniola, Jamaica and Trinidad and Tobago. This species is found in a wide variety of habitats, including low gallery forest, tropical rainforest and open montane forest. In the northern part of its range, it is found as an epiphyte in dry to moderately moist habitats from sea level to 300 m elevation, often growing on *Crescentia*, *Randia*, citrus and even cacti. In Nicaragua, it seems to transition to wetter habitats and higher elevations. In the southern part of its range, this species occurs as a common twig epiphyte at elevations of 500–2000 m, and is often found on cultivated plants such as citrus, coffee, *Inga* (Fabaceae), and *Spathodea* (Bignoniaceae). In Costa Rica the species has been described as weedy, growing robustly on coffee plants (Chase, 1986). Populations of this widespread species bloom at various times of the year.



Figure 4.725 (above) The fragrant flowers of the easily grown *Leochilus labiatus* (Grower: Howard Gunn).



Figure 4.726 (above) *Leochilus labiatus* has a proportionately large labellum (Photo: Gary Yong Gee).

LEOCHILUS

Culture recommendations: *Substrate* mount on plaques of cork bark, rough wood shingles or tree fern, with little or no New Zealand *Sphagnum* moss. This species may be potted in a fine bark mix or moss. *Temperature* warm to intermediate. *Light* light shade. *Watering* water frequently but allow to dry briefly between waterings. This species does not require a dry rest, but keep plants drier if exposed to cooler winter temperatures. *Humidity* high. *Air movement* good to brisk. *Propagation* easily by division, or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce frequency or withhold entirely during winter.

Comments: It is unusual that so cute a species as this should not be seen more often in cultivation, particularly when it is so widespread and abundant in nature. *Leochilus labiatus* is easy to grow, adaptable, charming and pleasantly fragrant; it should be grown more frequently. Flowering in cultivation often occurs in late spring to summer.



Figure 4.727 (above) *Leochilus labiatus* photographed *in situ* in Costa Rica on a tree (Photo: Daniel Jimenez).

LEOCHILUS

Leochilus leiboldii Rchb.f.

Publication: *Linnaea* 18: 404 (1845)

Etymology: Named for botanist F. E. Leibold (1804–1864), who collected orchids and other plants in Mexico, Cuba, United States, Australia and Germany.

Homotypic synonyms: *Papperitzia leiboldii* (Rchb.f.) Rchb.f.

Morphology: Plant to 8 cm tall, clumping, branching, slowly creeping, erect. *Pseudobulb* to 1.5 cm long by up to 0.8 cm wide, ovoid to elliptic, somewhat laterally compressed, subtended by 2–6 large, opposite, overlapping leafy bracts occasionally larger than the leaf, leaf apical, unifoliate. *Leaf* to 2.6–8 cm long by 0.6–1.2 cm wide, elliptic-oblong, apex acute, lamina erect to suberect, rigid, leathery. *Inflorescence* a raceme, to 5 cm long, suberect to descending, slender. *Flower* 1–1.5 cm long, to 24 in number, opening slowly in succession, not spreading widely, campanulate.

Range, elevation and habitat: Originally found in Zacuapan in the state of Veracruz, Mexico, this Mexican endemic is found in the foothills of the Sierra Madre Oriental and Sierra Madre del Sur, in both Veracruz and Oaxaca. It occurs at elevations of 600 m on the Atlantic side, to 1400 m on the Pacific side, in areas with more than 3 cm of annual rainfall. It has quite possibly been extirpated in Veracruz. Low population numbers with a limited distribution make this species extremely rare. It grows as a twig epiphyte in mesophytic barranca forest and lower montane rainforest, often along ravines, and flowers June to August in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, with little or no New Zealand *Sphagnum* moss around the roots. As a twig epiphyte, this species is probably not well-suited to potted culture as the roots need good air circulation and do not like to stay wet. *Temperature* intermediate. *Light* light shade to medium shade. *Watering* water frequently during the growing season, drying slightly between waterings. Reduce watering when pseudobulbs mature in the autumn, and provide a dry rest from mid-autumn to mid-spring, misting the roots at least every 10–14 days to avoid desiccation. *Air movement* good to brisk. *Propagation* by division, or seed. This rare species should be propagated whenever possible. *Fertilise* at 1/4 strength weekly, withholding in winter.

Comments: The strangely-shaped and exotic flowers of this rare species always attract attention; they are so different looking from those of its congeners that, for many years, it was known as *Papperitzia leiboldii*. Recent genetic studies have placed this plant in *Leochilus*, but though it is unusual in the genus, a careful study of the floral and plant morphology will reveal its relatedness. As with *Leochilus crocodiliceps*, *L. leiboldii* should be propagated whenever possible. Flowering in cultivation usually takes



Figure 4.728 (above) The flowers of *Leochilus leiboldii* are unusual for the genus (Grower: Petite Plaisance).



Figure 4.729 (above) A Mexican endemic, *Leochilus leiboldii* is rare in the wild and in cultivation (Grower: Petite Plaisance).

place between mid-summer and mid-autumn.

Lepanthes Sw.

Publication: Swartz, O. P., 1799, *Nova Acta Regiae Soc. Sci. Upsal.* 6: 85

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Pleurothallidinae

Type species: *Lepanthes concinna* Sw., 1799, *Nova Acta Regiae Soc. Sci. Upsal.* 6: 85 (= *Lepanthes ovalis* (Sw.) Fawc. & Rendle).

Etymology: From the Greek *lepis* (scale) and *anthos* (flower), referring to the small, scale-like flowers of many species within the genus.

Profile: A very large genus of over 800 species typically found at middling to high elevations, though there are some lowland tropical species. *Lepanthes* are generally found in wet cloud or elfin forests at elevations of 100–3300 m, and range from the West Indies and southern Mexico to southern Bolivia and northern Brazil, with a high proportion of narrow endemics.

General plant morphology: Tiny to medium-large in size, sympodial, epiphytic, lithophytic or terrestrial, rhizome creeping, clumping, much branched, erect or pendent. *Ramicaul* slender, enclosed in ribbed, apically thickened, infundibuliform imbricating sheaths, with oblique, dilated, margined ostia, margins of ostia glabrous or microscopically to grossly ciliate or scabrous, unifoliate. *Leaf* varies greatly, thick to thin textured, glabrous to pubescent, sometimes suffused with purple. *Inflorescence* a raceme, peduncle terete, 1 to several simultaneous inflorescences, filiform, borne terminally from apex of ramicaul, often on ventral side of leaf. *Flower* small, numerous, usually successive, thin textured, crystalline, sepals sub-equal, lateral sepals often joined to form synsepal, petals small, commonly transversely lobed, lip entire, bilobed or trilobed, and often highly specialised, base connate to undersurface of footless column, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. *Lepanthes* grown in very humid conditions have often done well with little or no moss around the roots. The plants may also be potted in moss or a fine bark mix in small pots; ensuring that plants are not overpotted and that the rhizome is not buried. *Temperature* indicated by species. *Light* medium shade. *Watering* keep moist, well drained, not wet. Use high quality water that is low in total dissolved solids. *Humidity* high. *Air movement* good. *Propagation* by division or seed. Some species produce adventitious plantlets (keikis) at the apex of the ramicaul; these may be mounted or potted separately once roots form. Fertilise at 1/4 strength weekly. Pleurothallids, including *Lepanthes*, are prone to bean yellow mosaic virus (BYMV), which is spread by aphids. Ensure that plants are kept free of these pests. Any variations from these notes are discussed under the individual species entries.



Figure 4.730 (above) A favourite amongst growers, *Lepanthes calodictyon* is grown as much for its foliage as its flowers (Grower: John Leathers).



LEPANTHES

Lepanthes aculeata Luer

Publication: *Phytologia* 54: 327 (1983)

Etymology: From the Latin *aculeatus* (spiny, covered with prickles), referring to the softly spiny leaves.

Morphology: *Plant* 5–11 cm tall, clumping, branching, erect. *Ramicaul* 3–7.5 cm, erect. *Leaf* 1.7–2.8 cm long by 1–1.4 cm wide, petiole 1–2 mm with fringed margins, lanceolate to ovate, apex acute, lamina erect, leathery, ventrally dark green to purplish, covered with dense, soft prickles. *Inflorescence* a congested raceme, to 1 cm long, shorter than leaves, peduncle 0.5–1 cm, ventral. *Flower* 0.5–0.6 cm tall, many, ca. 13 in number, successive, resupinate, spreading widely, pedicel minute.

Range, elevation and habitat: *Lepanthes aculeata* is a relatively common species that is found on the eastern slopes of the Andes Mountains in Ecuador (provinces of Morona-Santiago, Napo, Pastaza and Zamora-Chinchipe) and Peru (department of Amazonas), growing epiphytically in wet, montane and cloud forest at elevations of 1200–2000 m. Plants in nature may bloom in any month.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate-cool to cool.

Comments: This incredible species has gem-like flowers that are delicately suspended above the amazing, softly spiky leaves. Easy to grow under cool, shady conditions, its only drawback is that it may not be easy to obtain, although divisions are occasionally available. Another species, as yet unidentified and illustrated here as *Lepanthes* aff. *aculeata*, has been sold as *L. aculeata*, but the leaves of this taxon have dark colouring between the raised veins that are lined with soft spines. Like many *Lepanthes* species, *L. aculeata* flowers at any time of the year in cultivation, and is frequently in bloom.

Figure 4.733 (facing page) The miniature *Lepanthes antilocapra* shares its specific name with the genus of Pronghorn Antelopes of North America, alluding to the similarity of the petals of the flower to the horns of these ungulates (Grower: Marni Turkel).

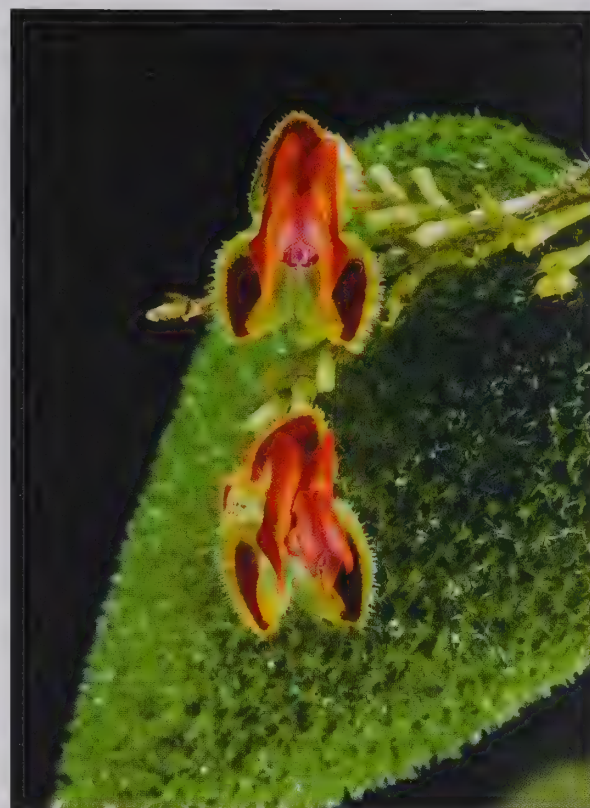


Figure 4.731 (above) The wonderful little flowers of *Lepanthes aculeata* sit above the prickly leaf (Grower: Unknown).

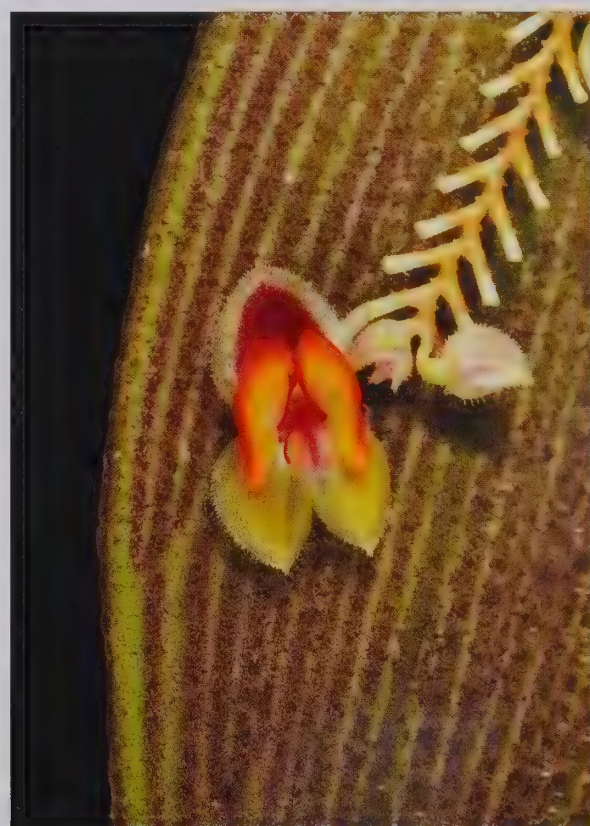


Figure 4.732 (above) A flower of *Lepanthes* aff. *aculeata*, with spent pedicels adding interest (Grower: Hanging Gardens).

LEPANTHES

Lepanthes acuminata Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 10: 355 (1912)

Etymology: From the Latin *acuminatus* (pointed), a reference to the shape of the sepals.

Morphology: *Plant* 7–10 (to 14) cm tall, clumping, branching, erect. *Ramicaul* 4–6 (to 8) cm, erect. *Leaf* to 3.5 cm long by 2 cm wide, ovate-elliptic, apex acute, acuminate, lamina leathery, prominent longitudinal venation, minutely punctate ventrally, often suffused with purple. *Inflorescence* 1 to 3 simultaneous racemes, to 1 cm long, ventral. *Flower* 1–1.5 cm tall, many, to ca. 13 in number, successive, 1–2 simultaneously, resupinate, widely spreading.

Range, elevation and habitat: *Lepanthes acuminata* is a widespread and abundant species, found in Mexico in the Sierra Madre Oriental and Sierra de los Tuxtlas (states of Veracruz, Oaxaca and Chiapas), Guatemala, Belize, El Salvador, Honduras (departments of Comayagua and Ocotepeque) and Nicaragua (departments of Jinotega, Madriz and Matagalpa). It occurs at elevations of 950–2200 m. It grows epiphytically on trunks and twigs in dense, wet forest, montane rainforest, evergreen elfin forest, cloud forest and secondary forest. In Chiapas, *Lepanthes acuminata* is found in pine-oak/*Liquidambar* forests. This species flowers throughout the year.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: *Lepanthes acuminata* is a wonderful little species; it is common, adaptable, easy to grow, has proportionately large, flat, attractive flowers, and can bloom at any time of year. An appealing feature is its petals and lip, which are reminiscent of a brightly coloured butterfly. This species may be grown under intermediate conditions, which is always a plus for growers who wish to try a *Lepanthes*.



Figure 4.734 (above) Flowers of the widespread *Lepanthes acuminata* rest enticingly on the leaves (Grower: John Leathers).

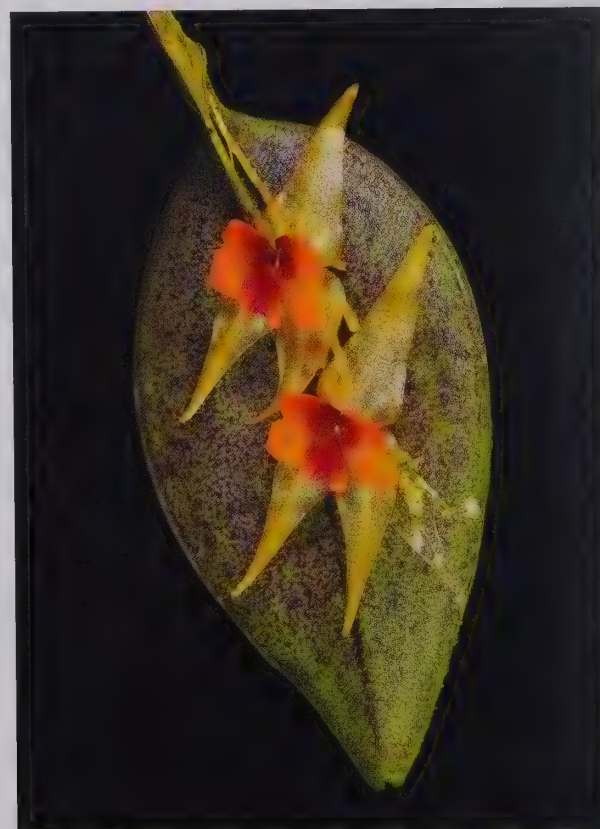


Figure 4.735 (above) *Lepanthes acuminata* is not only attractive, but easy to grow and freely flowering (Grower: Marni Turkel).

LEPANTHES

Lepanthes calodictyon Hook.

Publication: *Bot. Mag.* 87: t. 5259 (1861)

Etymology: From the Greek *calo* (beautiful) and *dictyon* (netted), referring to the fine leaf pattern.

Morphology: *Plant* 1.5–4 cm tall, clumping, much branching, erect. *Ramicaul* 1.5–3.5 cm, slender, erect to suberect. *Leaf* 1–2.5 cm long by 0.8–2.5 cm wide, abruptly constricted into minute petiole, ovate to nearly orbicular, apex obtuse to rounded, lamina spreading to hanging, flexible, soft, thin, margins undulate, pattern dark green to purplish reticulate or tessellate. *Inflorescence* a congested raceme, 0.4–0.6 cm long, much shorter than leaves, peduncle 0.2–0.6 cm, peduncle resting on top of leaf, subsecund. *Flower* to 0.5 cm tall, several in number, successive, one, rarely two, open simultaneously, resupinate, spreading widely, dorsal sepal noticeably reflexed and petals outstretched when fully open, petals orange or red, lip red, orange or pink. Sepals vary from yellow to orange.

Range, elevation and habitat: *Lepanthes calodictyon* occurs in the western Cordillera of the Andes Mountains, on the western peaks of western Colombia (departments of Antioquia and Valle del Cauca) and northwestern and central Ecuador (provinces of Bolivar, Chimbarazo, Cotopaxi, Esmeraldas and Pichincha) at elevations of 450–1400 m. This species grows epiphytically in wet montane and cloud forests, where it can be found growing with its close relatives, *L. saltatrix* Luer & Hirtz, *L. tentaculata* Luer & Hirtz, and *L. volador* Luer & Hirtz. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* warm-intermediate to intermediate-cool.

Comments: The majority of those who see a well-grown plant of *Lepanthes calodictyon* are quickly keen to cultivate this jewel of a miniature orchid. It is very beautiful in both plant and flower, and can be regarded as a must-have species in a miniatures collection. The foliage is exquisite, the leaves sometimes almost round, with a fantastic, reticulate pattern of dark veins and bright, emerald-green squares. Moreover, the entire margin is crisp and undulate, providing a lacy frame to the already ornate leaves. The intricate, gem-like flowers are reminiscent of brilliantly-coloured insects with long antennae, and can occur nearly year-round on a good-sized plant. This species is readily available and, though not inexpensive, no longer unaffordable. Whilst somewhat difficult to cultivate for some, this species can be grown readily by those with intermediate or cool growing collections that offer high humidity, good air exchange, high quality water and medium shade. The leaves tend to exhibit curled, brown edges if humidity is too low or water quality poor.



Figure 4.736 (above) The remarkable *Lepanthes calodictyon* has marvellous leaves and fine flowers (Grower: Marni Turkel).



Figure 4.737 (above) The leaf and flower of *Lepanthes calodictyon* in detail (Grower: Marni Turkel).

LEPANTHES

Lepanthes caprimulgus Luer

Publication: *Selbyana* 3: 12 (1976)

Etymology: From the Latin *capra* (goat) and *mulgeo* (milking), from the fancied similarity between the flowers and the birds of the genus *Caprimulgus*, commonly called Goatsuckers.

Morphology: *Plant* 5–12 cm tall, clumping, branching, erect. *Ramical* 3–8 cm, erect to descending. *Leaf* 2–3 cm long by 1–1.4 cm wide, minutely petiolate, oblong-elliptic, apex sub-acute, lamina erect, leathery. *Inflorescence* a loose raceme, to 22 cm long, much longer than leaf, descending to pendent, usually lying along midvein of leaf. *Flower* 1.2–2 cm tall, few in number, successive, resupinate, sepals connate along length, only open at aperture, dorsal sepal pointed, slightly flaring, lateral sepals pointed and margin recurved, pedicels minute. The flowers can vary in overall shape, from elongate to shorter and stouter, in colour, and in the shape and boldness of striping.

Range, elevation and habitat: *Lepanthes caprimulgus* is a rare species endemic to north-central Peru, department of Huánuco. It is found at elevations of 1700–2330 m where it grows epiphytically in cool cloud forest. This species can bloom in any month in nature.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate-cool, to cool.

Comments: A species that cannot be confused with any other, *Lepanthes caprimulgus* has unique, inflated, erect, tubular flowers that flare at the aperture. These truly spectacular blooms hang down from long, wiry, swaying, pendent inflorescences, and once plants grow to a mature size, there are nearly always flowers present. For many years only a limited number of clones of this naturally rare species were available, but relatively recently more individuals have been exported from Peru. The range of floral variation is now known to be greater than previously thought. This species has been placed in section *Marsipanthes* in the past, though it is not clear whether or not these section names are currently accepted. Flowering in cultivation can occur in any month, and some plants bloom continuously.



Figure 4.738 (above) The flowers of *Lepanthes caprimulgus* 'Gorgeous Goobers' CBM/AOS (Grower: Marni Turkel).



Figure 4.739 (above) *Lepanthes caprimulgus* has unique and unmistakable flowers (Grower: Marni Turkel).

LEPANTHES

Lepanthes cloesii Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 76: 165 (1999)

Etymology: Named in honour of Patrick Cloes of Hasselt, Belgium, who collected this species in 1997.

Morphology: *Plant* 7–12 cm tall, clumping, branching, erect. *Ramicaul* 4–7 cm, erect. *Leaf* 3–5 cm long by 1.5–2 cm wide, sessile to minutely petiolate, broadly elliptical, apex obtuse to rounded, lamina erect, ventrally purplish. *Inflorescence* a raceme, 10–20 cm long including peduncle, much longer than leaves. *Flower* 2.5 cm tall, several in number, successive, resupinate, spreading, petals dark, horn-like.

Range, elevation and habitat: *Lepanthes cloesii* occurs in the Carpish mountains, department of Huánuco, Peru, at an elevation of approximately 2800 m in cold cloud forest. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* cool to cold.

Comments: *Lepanthes cloesii* is a stunning species with bold colours and striking contrasts. The fairly large, surreal flowers are brilliant red, with contrasting, bright white margins, and have black, forward-pointing petals that look like the horns of some mythical creature. It is a plant that certainly requires cool to cold temperatures to grow well, but offers no difficulty otherwise. Whilst readily available in the trade, plants can be fairly expensive, in common with many of the more colourful and larger-flowered species in this genus. Flowering in cultivation tends to take place during the autumn and winter months.



Figure 4.740 (above) The captivating flower of *Lepanthes cloesii* is simply stunning (Grower: Marni Turkel).



Figure 4.741 (above) The *Lepanthes cloesii* bloom in profile (Grower: Marni Turkel).

LEPANTHES***Lepanthes dalessandroi* Luer****Publication:** *Phytologia* 54: 338 (1983)

Etymology: Named in honour of Dennis D'Alessandro, American former curator of orchids at Orquideario Predesur, Vilcabamba, Ecuador, and owner of Gypsy Glen Orchids in Beaver, Pennsylvania, who collected this species with Stig Dalström and the late Padre Andreetta.

Morphology: Plant 5–13 cm tall, clumping, branching, erect. *Ramical* 3–8 cm, erect. *Leaf* 2–5 cm long by 0.7–1.1 cm wide, narrowly oblong-elliptic, apex sub-acute to obtuse, lamina erect, leathery. *Inflorescence* a loose raceme, to 33 cm long including peduncle, much longer than leaves, progressively lengthening between flowers, subflexuous. *Flower* 3–4 cm long, several (to 10) in number, successive, 1–3 open simultaneously, resupinate, widely spreading, pedicels 0.4–1 cm. Flowers vary in shape, and colour from yellowish-brown to brown to reddish brown.

Range, elevation and habitat: *Lepanthes dalessandroi* occurs in Ecuador, (provinces of Loja, Tungurahua and Zamora-Chinchi) and Peru, where it grows epiphytically in cool to cold cloud and wet montane forests at elevations of 1700–2800 m. No confirmed bloom-time records could be found, but it is presumed to flower in any month. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* cool.

Comments: One of the largest flowered species in the genus, *Lepanthes dalessandroi* is fortunately relatively common in cultivation. The successive blooms hang from long, thin, zig-zagging inflorescences that are much longer than the leaves, and which sway in the slightest breeze. Full-shaped and variable in colour, there is much to recommend this species to collectors. Due to the long, dangling flower spikes, the plants are more aesthetically pleasing when grown mounted. Flowers can occur in any month in cultivation.



Figure 4.742 (above) The large-flowered *Lepanthes dalessandroi* is common in cultivation (Grower: Marni Turkel).

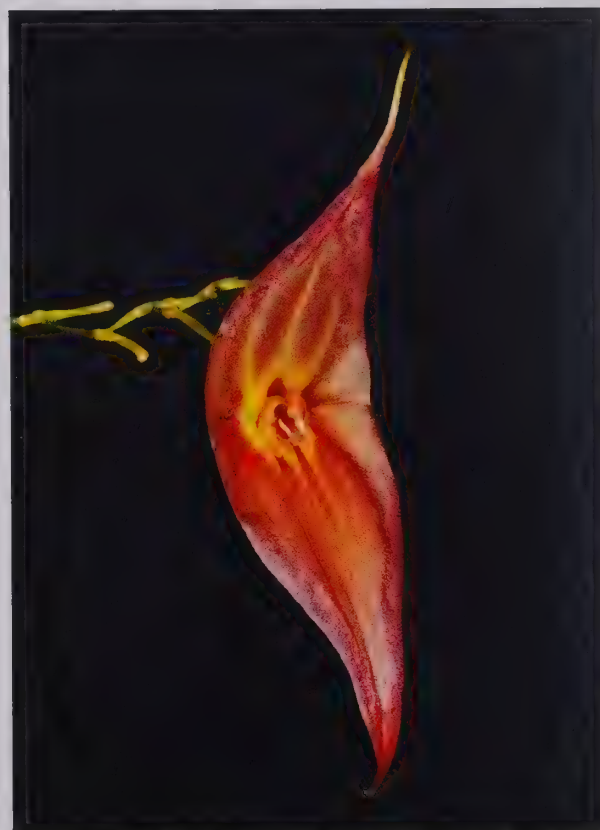


Figure 4.743 (above) *Lepanthes dalessandroi* is a handsome and readily grown taxon, best mounted (Grower: Marni Turkel).

LEPANTHES

Lepanthes delhierroi Luer & Hirtz

Publication: *Novon* 3: 445 (1993)

Etymology: Named in honour of Juan del Hierro, one of the founders of the Quito Botanical Garden in Ecuador, and the discoverer of this species.

Morphology: *Plant* 3.5–7 cm tall, clumping, branching, erect. *Ramical* 2–4 cm, erect. *Leaf* 1.7–2.8 cm long by 0.7–1.2 cm wide, minutely petiolate, oblong-elliptic, apex obtuse, lamina erect, leathery, ventrally purplish. *Inflorescence* a loose raceme, to 6 cm long, longer than leaves, distichous. *Flower* 1–1.5 cm long, several in number, successive, resupinate, spreading to widely spreading, pedicels 0.2–0.3 cm. This species varies in openness of flower, shape of sepals, and amount and width of the yellow striping on the sepals.

Range, elevation and habitat: *Lepanthes delhierroi* occurs in Ecuador, where it grows epiphytically in high elevation cloud forest. The type specimen was collected on the road between El Carmelo and La Bonita, in the province of Sucumbíos, at 2400 m elevation. There are also collection records in the provinces of Morona-Santiago, Carchi and Napo at elevations of 2000–2400 m, but relatively recently it has been found at lower elevations (1600–2000 m) in Carchi Province (Jose ‘Pepe’ Portilla, pers. comms.). This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

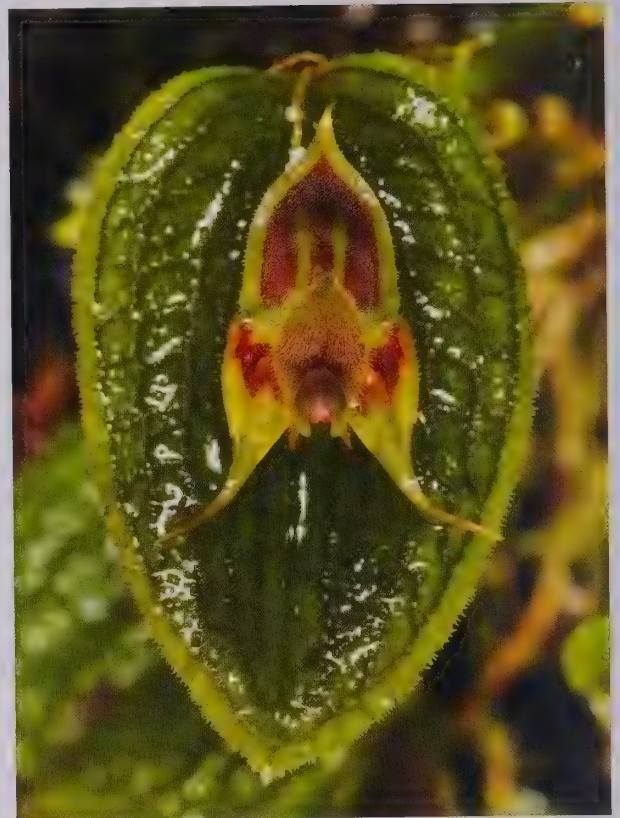
Comments: A variable species in shape, colour and pattern, *Lepanthes delhierroi* is a choice addition to any collection. In particular, the forms with broad, bright yellow stripes against a bright red background are especially eye-catching. While not frequently seen in collections, this species is available in the trade. Flowering can take place in any month in cultivation.



Figure 4.744 (above) *Lepanthes delhierroi* is a variable, but desirable species with fine blooms (Grower: Russ Varnado).



Figure 4.745 (above) The flower of *Lepanthes delhierroi*, a taxon not often seen in collections (Grower: Russ Varnado).

LEPANTHES***Lepanthes dodsonii* Luer****Publication:** *Phytologia* 54: 340 (1983)**Etymology:** Named in honour of Calaway H Dodson (1928 –), American orchidologist, taxonomist, and former director of the Marie Selby Botanical Gardens, who discovered this species.**Morphology:** *Plant* 3–5 cm tall, clumping, branching, erect. *Ramicaul* 1.5–3 cm, erect to suberect. *Leaf* 1.5–2 cm long by 1.3–1.7 cm wide, minutely petiolate, ovate-cordate, apex obtuse, lamina nodding, concave, rugose, pubescent, pattern reticulate, margin minutely ciliate. *Inflorescence* a congested raceme, to 1.2 cm long, distichous, aligned along dorsal midvein. *Flower* 0.7–0.9 cm tall, several in number, successive, resupinate, basically spreading, lateral sepaline tails long, filiform, curving upwards. Flowers vary in colour from yellow to green.**Range, elevation and habitat:** *Lepanthes dodsonii* occurs in Colombia (departments of Antioquia and Risaralda) and Ecuador (provinces of El Oro, Esmeraldas and Imbabura). An uncommon, but widely distributed species, it grows epiphytically amongst mosses and lichens in montane cloud forest at elevations of 900–2100 m.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** Nothing is ordinary about *Lepanthes dodsonii*. The beautifully patterned, amazingly shaped and furry-textured flowers nestle gently in the concavity of equally gorgeous leaves. The inflorescence gradually elongates, with each successive flower hanging slightly lower, occasionally reaching or sometimes surpassing the apex of the leaf. While many individuals would need magnification to appreciate these features, close examination will reveal their exquisite form. *Lepanthes dodsonii* is uncommon to rare in cultivation and can be a difficult subject for even advanced growers. In cultivation, blooming tends to occur between mid-summer and late autumn, but possibly at other times.**Figure 4.746 (above)** *Lepanthes dodsonii* is a wonderful species with remarkable flowers and leaves (Grower: J & L Orchids).**Figure 4.747 (above)** The bloom of *Lepanthes dodsonii* seen in profile (Grower: Steve Beckendorf).

LEPANTHES

Lepanthes elegantula Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 14: 127 (1915)

Etymology: From the Latin *elegantulus* (elegant), in reference to the large, stately flowers.

Morphology: Plant 8–12 cm tall, clumping, branching, erect. *Ramicaul* 5–8 cm, erect. *Leaf* 3–4 cm long by 1–1.7 cm wide, oblong-elliptical, apex obtuse, minutely petiolate, lamina erect, leathery. *Inflorescence* a loose raceme, to 15 cm long, distichous. *Flower* 2–2.6 cm tall, several to many in number, singly successive, resupinate, flat, dorsal and lateral sepals connate at base, lateral sepals connate for length with notch at apex, pedicel minute. Flowers vary in colour from deep reddish or purplish brown to nearly orange.

Range, elevation and habitat: *Lepanthes elegantula* is endemic to central Ecuador in the provinces of Cotopaxi, Imbabura, Pastaza and Pichincha. It is found at elevations of 2800–3300 m, growing epiphytically in cold, montane, wet cloud forest. Although no confirmed bloom-time records beyond February and March could be found, this species is likely to bloom in any month. This species is listed as near threatened on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* cool to cold.

Comments: One of the coldest-growing *Lepanthes*, *L. elegantula* is a requisite species for collectors of miniatures. The relatively large flowers are almost perfectly flat except for the relief of the petals and lip, and sway on long, wiry spikes that greatly surpass the length of the leaves. Somewhat variable in colour, from a deep reddish or purplish-brown to nearly orange, the collection of multiple colour forms is worthwhile if the cold temperatures can be provided. Flowering can be nearly continuous once plants reach maturity, always an appealing trait.

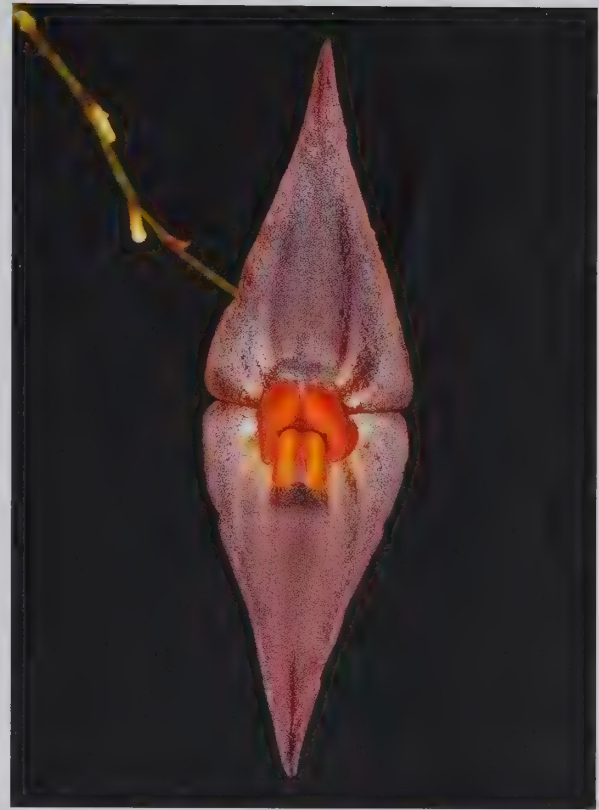
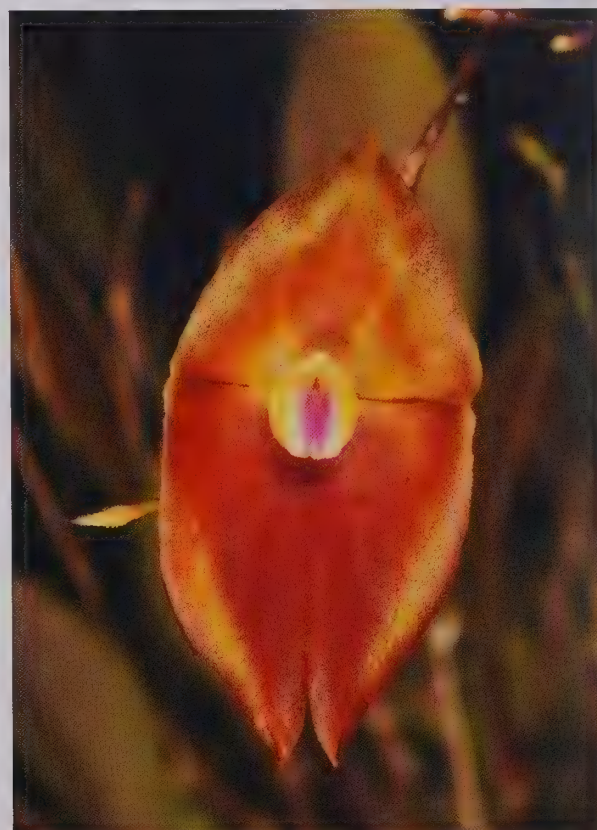


Figure 4.748 (above) The relatively large, flattened flower of *Lepanthes elegantula* (Grower: Marni Turkel).



Figure 4.749 (above) *Lepanthes elegantula* is one of the coldest growing *Lepanthes* (Grower: Russ Varnado).

LEPANTHES***Lepanthes escobariana* Garay****Publication:** *Orquideologia* 4: 76 (1969)**Etymology:** In honour of the late Rodrigo Escobar (1935–2009), a well-known Colombian orchidologist.**Morphology:** *Plant* to 8.5 cm tall, clumping, branching, erect to suberect. *Ramicaul* to 5.5 cm, erect to suberect. *Leaf* 2.5–4 cm long by 0.7–1.5 cm wide, sessile to minutely petiole, oblong-elliptic to ovate, apex obtuse, lamina erect, rigid, leathery. *Inflorescence* a loose raceme, to approximately 14 cm long, fractiflex, elongating between flowers, longer than leaves. *Flower* 1.5–2 cm tall, few to many (up to 25) in number, successive, resupinate, spreading, shallowly concave, lateral sepals connate nearly to apex. Flowers vary in colour from yellow to orange to light brown.**Range, elevation and habitat:** *Lepanthes escobariana* occurs as an epiphyte in the department of Antioquia, Colombia, presumably in cool, wet, montane and cloud forests. There are no confirmed elevation or habitat data for this species. Although no confirmed bloom-time records could be found, it is likely this species can bloom in any month as it does in cultivation.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate to cool.**Comments:** Another species of the genus that can bloom year round, *Lepanthes escobariana* is a classic selection for those interested in *Lepanthes*. The flowers are full-shaped, some with almost iridescent yellow to orange colouration, and are prominently displayed hanging on long inflorescences that surpass the leaves. Easy to obtain, relatively common in cultivation and presenting no cultivation difficulties beyond a requirement for cool, humid, shady conditions and good quality water, *L. escobariana* is an excellent choice for both the beginner and expert alike.**Figure 4.750 (above)** Flowers of *Lepanthes escobariana*, a Colombian endemic (Grower: Mary Gerritsen).**Figure 4.751 (above)** The flowers of *Lepanthes escobariana* are borne away from the leaves (Grower: Russ Varnado).

LEPANTHES

Lepanthes felis Luer & R. Escobar

Publication: *Amer. Orchid Soc. Bull.* 52: 1264 (1983)

Etymology: From the Latin *felis* (cat) referring to the appearance of the flowers when viewed upside-down.

Morphology: *Plant* 3.5–7 cm tall, clumping, branching, erect to suberect. *Ramicaul* 1.5–4.5 cm, erect to suberect. *Leaf* 1.8–2 cm long by 1–1.4 cm wide, minutely petiolate, elliptical, apex sub-acute, lamina erect to spreading, leathery, purplish ventrally. *Inflorescence* a congested raceme, 1.5–2 cm long, suspended above or lying along midvein of dorsal side of leaf. *Flower* 1–2 cm tall, several in number, successive, 1–2 open simultaneously, resupinate, large hooded dorsal sepal, lateral sepals partially connate at base, spreading but with deep sepaline cup, petals narrowly oblong, green. Flowers vary in colour from translucent greenish with reddish bands to mostly red with cream-coloured bands.

Range, elevation and habitat: *Lepanthes felis* is an uncommon species that is widely distributed in the western Cordillera of Colombia (departments of Antioquia, Chocó and Valle del Cauca). This species is found at elevations of 1720–2500 m, where it grows epiphytically in cool cloud forest. This species can bloom in any month. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate-cool to cool.

Comments: Another member of section Marsipanthes, and perhaps one of the finest members of the genus, *Lepanthes felis* is highly desirable, rarely available, and expensive when it is! It has relatively large, somewhat triangular, full-shaped flowers that are born successively on short inflorescences held just above the leaves. The flowers are highly variable in colour and pattern, but the two most common colour variations are a lovely, nearly translucent, lemon-lime green with transverse reddish bands, and a dazzling red form, often with transverse creamy bands. In its native country of Colombia, this species is referred to as “El Gato” (the cat), at first a puzzling description until one views the flowers upside down! The narrow, green petals add further to the illusion, resembling the slitted pupils of its namesake. Flowering is frequent in cultivation, often from mid-winter to early spring and mid-summer to mid-autumn, but it is likely to bloom at other times as well. This species is highly recommended for those with the proper growing conditions.

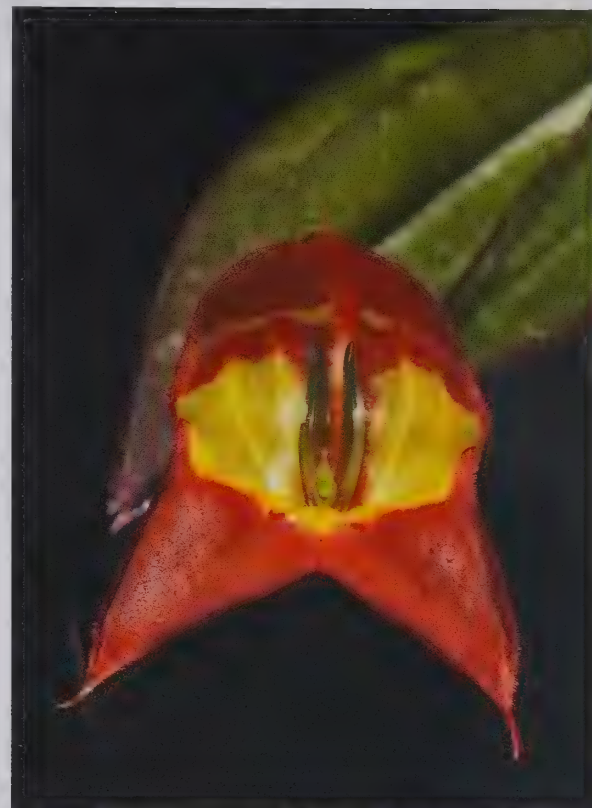


Figure 4.752 (above) The beautiful, but uncommon *Lepanthes felis* is highly desirable in the trade (Grower: J & L Orchids).



Figure 4.753 (above) *Lepanthes felis* photographed *in situ* in Colombia (Photo: Sebastian Vieira Uribe).





Figure 4.754 (above left) *Lepanthes felis* (Grower: John Leathers).

Figure 4.755 (above right) *Lepanthes felis* 'J & L's Jumbo' has predominantly red blooms (Grower: J & L Orchids).

Figure 4.756 (below) *Lepanthes felis* (Grower: John Leathers).

Figure 4.757 (facing page) A handsomely coloured flower of *Lepanthes felis* in detail (Grower: Marni Turkel).

LEPANTHES***Lepanthes guatemalensis* Schltr.****Publication:** *Repert. Spec. Nov. Regni Veg.* 10: 355 (1912)**Etymology:** The toponym *Guatemala* and the Latin suffix *-ensis*, meaning 'from Guatemala.'**Morphology:** *Plant* to 7 cm tall, clumping, branching, erect. *Ramicaul* to 5 cm, erect to ascending. *Leaf* 0.8–2 cm long by 0.3–0.8 cm wide, shortly petiolate, elliptical to broadly obovate, apex round to obtuse, lamina erect, leathery, fleshy. *Inflorescence* a loose raceme, to 12 cm long, longer than leaf. *Flower* 1.5–2.5 cm tall, few in number, successive, 1–2 open simultaneously, resupinate, yellow to orange, with red petals and lip.**Range, elevation and habitat:** *Lepanthes guatemalensis* occurs in southern Mexico, in north-central and eastern Guatemala (provinces of Alta Verapaz, El Progreso and Zacapa) and in El Salvador. In Chiapas, Mexico, it has been found at elevations of 1350–3000 m, growing epiphytically in dwarf, montane evergreen forest of *Podocarpus* and *Clusia* in cool, moist, mossy conditions. This species is thought to be highly vulnerable, possibly extirpated, in Mexico, but remains relatively common in northern Guatemala. Although only one bloom-time record for September could be found, it is likely to bloom at other times of year.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate to cool.**Comments:** *Lepanthes guatemalensis* is an elegant species, quite variable in colour, with longish, narrow flowers of orange or yellow. While the orange forms are attractive, it is the yellow forms, with their brilliant, contrasting red petals that are truly dazzling. The species is easy to grow and presents no difficulties in cultivation. Blooming is most frequent between mid-spring and late summer in collections.**Figure 4.758 (above)** The elegant flowers of *Lepanthes guatemalensis* (Grower: Hanging Gardens).**Figure 4.759 (above)** Yellow forms of *Lepanthes guatemalensis* contrast most strongly with the petals (Grower: Phil Muller).

LEPANTHES

Lepanthes helleri A.D.Hawkes

Publication: *Phytologia* 14: 6 (1966)

Etymology: Named in honour of Alfonse Henry Heller (1894–1973), the Nicaraguan orchidologist who discovered this species.

Heterotypic synonyms: *Lepanthes infundibulum* Luer, *Lepanthes comet-halleyi* Luer.

Morphology: *Plant* 3–10 cm tall, clumping, branching, erect. *Ramicaul* 1–8 cm, erect, sheaths blackish. *Leaf* 2.2 cm long by 2.1 cm wide, shortly petiolate, orbicular, sometimes broader than long, apex rounded, lamina spreading to somewhat nodding, deeply concave, marginate. *Inflorescence* a congested raceme, to 2 cm long, usually shorter than leaves, to 3 simultaneous inflorescences, flowers distichous. *Flower* 0.5 cm tall, successive, to 4 open simultaneously, up to 40 in number, resupinate, widely spreading.

Range, elevation and habitat: *Lepanthes helleri* occurs in Nicaragua (departments of Estelí, Jinotega and Matagalpa), Costa Rica (provinces of Guanacaste, Puntarenas and San José) and Panama (province of Chiriquí), at elevations ranging from 800–2500 m. It grows epiphytically in wet montane forest and low scrubby forest on the smaller branches of primarily leguminous trees (especially *Acacia*) and *Psidium* (guava). It is occasionally locally common. This species may bloom in any month.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate.

Comments: An uncommon species in cultivation, *Lepanthes helleri* is definitely one worth the search. The closely packed, few to several simultaneous, bejewelled flowers, reminiscent of a clutch of baby birds in a nest, are held towards the base of the concave, heart-shaped leaf. One of the cutest species of the genus, it flowers between late winter and mid-summer in cultivation and is likely to bloom at other times also.



Figure 4.760 (above) The jewel-like flowers of *Lepanthes helleri* rest upon the supporting leaf (Grower: John Leathers).



Figure 4.761 (above) Plants of *Lepanthes helleri* are truly diminutive (Grower: John Leathers).

LEPANTHES

Lepanthes hondurensis Ames

Publication: *Proc. Biol. Soc. Wash.* 44: 43 (1931)

Etymology: The toponym *Honduras* and the Latin suffix *-ensis*, meaning 'from Honduras.'

Morphology: *Plant* 7.5–14 cm tall, clumping, branching, erect. *Ramicauls*: 5–10 cm, erect, sheaths blackish. *Leaf* 2.5–5 cm long by 1.3–2.2 cm wide, ovate, apex acute, mucronate, lamina erect, ventrally minutely punctate. *Inflorescence* a congested raceme, 1–2.5 cm long, one to two simultaneous, shorter than leaf, distichous. *Flower* to 0.7 cm tall, successive, 1–2 simultaneous, several in number, resupinate, widely spreading.

Range, elevation and habitat: The *Lepanthes hondurensis* type specimen was found at an elevation of 2100 m in the department of Atlántida, in the Lancetilla Valley near Tela, Honduras. This epiphytic species has also been collected in Guatemala in the province of Quetzaltenango, at 2100 m in moist montane forests. This species may bloom in any month in nature. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: The remarkable flowers of *Lepanthes hondurensis* appear to have a tiny, brilliant, red and yellow butterfly resting on them! The intricate, gem-like flowers seem to be ever present, although they are somewhat shy, hiding on the backs of the leaves. Not one of the cooler growing *Lepanthes*, this is an ideal species for collectors with intermediate growing conditions, although it may be difficult to procure.



Figure 4.762 (above) The brilliant flowers of *Lepanthes hondurensis* are borne under the leaves (Grower: Marni Turkel).



Figure 4.763 (above) The wonderful, vividly coloured flower of *Lepanthes hondurensis* in detail (Grower: Marni Turkel).



Figure 4.764 (above) The flower and spent pedicels of *Lepanthes hondurensis* (Grower: Marni Turkel).

LEPANTHES

Lepanthes lucifer Luer & Hirtz

Publication: *Amer. Orchid Soc. Bull.* 56: 1016 (1987)

Etymology: Lucifer, a name for the Devil, referring to the fanciful resemblance of the red flowers with their two blackish, horn-like petals.

Morphology: *Plant* 4.5–9.5 cm tall, clumping, branching, suberect to spreading. *Ramicaul* 2–5.5 cm, suberect to spreading. *Leaf* 3.5–5 cm long by 2–3.2 cm wide, minutely petiolate, oblong elliptical, apex obtuse to subacute, lamina spreading, thinly leathery, purplish underneath. *Inflorescence* a congested raceme, to 6 cm long, including peduncle, distichous, usually rests along midvein on dorsal surface of leaf. *Flower* to 1 cm in diameter, successive, 1–2 simultaneous, several in number, resupinate, large hooded dorsal sepal, lateral sepals connate at base, deep sepaline cup, petals black, horn-like, pedicel minute.

Range, elevation and habitat: *Lepanthes lucifer* occurs in northwestern Ecuador (provinces of Esmeraldas and Imbabura) at elevations of 1200–1500 m. It grows epiphytically in wet montane and cloud forest on west-facing Andean slopes. Plants of *L. lucifer* may bloom at any time of the year. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A close relative of *Lepanthes felis*, *L. lucifer* is also a collector's item and is fancied by many growers. This species, like *L. felis*, has flowers on short inflorescences that rest along the midvein of the leaves. However, while *L. lucifer* seems to lack the range of variation of the latter species, it has delightful, full-shaped flowers of a vibrant red, and narrow, club-like, devilish petals. Mature plants are almost never out of bloom. *Lepanthes lucifer* has been placed in section Marsipanthes in the past, a group of species characterised by relatively large flowers with a "pouch-like" sepaline tube.



Figure 4.765 (above) A pair of *Lepanthes lucifer* blooms resting upon their supporting leaf (Grower: Cindy Hill).



Figure 4.766 (above) A trio of fiery *Lepanthes lucifer* flowers make for a striking display despite their small size (Grower: Cindy Hill).



Figure 4.767 (above) Entire *Lepanthes lucifer* plants measure just centimetres across (Grower: Cindy Hill).

LEPANTHES***Lepanthes mulleriana* Luer****Publication:** *Monogr. Syst. Bot. Missouri Bot. Gard.* 72: 107 (1998)**Etymology:** Named in honour of Philip Muller of Mountain View, California, who cultivated the species.**Morphology:** *Plant* 2.7–7.5 cm tall, clumping, branching, erect. *Ramicaul* 1.5–5 cm, erect. *Leaf* 1.2–2.2 cm long by 1–1.3 cm wide, minutely petiolate, broadly ovate, apex obtuse, lamina erect, leathery. *Inflorescence* a sub-congested raceme, to 8 cm long including to 2 cm peduncle, distichous, usually longer than leaves. *Flower* 1 cm tall, few, successive, resupinate, widely spreading, pedicel minute.**Range, elevation and habitat:** There are no collection data for the type specimen. It was purchased from Ecuagenera Nursery of Gualaceo, Ecuador, and cultivated by Philip Muller, who submitted it for identification. It is found in the province of Zamora-Chinchipe, where it grows epiphytically at elevations of 2000–2400 m in cloud forest (Ivan Portilla, pers. comms.). This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general culture notes for the genus. *Temperature* cool.**Comments:** *Lepanthes mulleriana* is an enchanting little species with a wondrous, striped, bug-like flower, complete with spiny little hairs on the side-lobes of the lip. Originally recognised by Philip Muller as a possible new species from amongst a shipment of orchids from Ecuagenera Nursery, it remains quite rare in collections, although recently plants have become available. In Luer's original description (1998), he remarked that this species had no close relatives, but the authors believe that it is possibly related to *L. nycteris* Luer & R.Vásquez and *L. martineae* Luer & Cloes. It has flowered in cultivation between late autumn and early spring, but it is probable that plants can also bloom at other times of year. Mature plants are almost always in bloom.**Figure 4.768 (above)** The striking *Lepanthes mulleriana* bloom, beautiful in and out of flower (Grower: Marni Turkel).**Figure 4.769 (above)** *Lepanthes mulleriana*, of Ecuador, is an enchanting little species (Grower: Marni Turkel).

LEPANTHES

Lepanthes nautilus Luer & R.Escobar

Publication: *Amer. Orchid Soc. Bull.* 53: 1046 (1984)

Etymology: Named for the fancied resemblance of the flower to the shelled cephalopods of the genus *Nautilus*.

Morphology: *Plant* 7–11 cm tall, clumping, branching, erect. *Ramicaul* 3–8 cm, erect. *Leaf* to 4.5 cm long by 2. cm wide, shortly petiolate, elliptical, apex obtuse to rounded, lamina erect, thinly leathery. *Inflorescence* a loose raceme, to 10 cm long including 3.5–4 cm peduncle, fractiflex, descending from ramicaul, longer than leaves. *Flower* 2–2.5 cm tall, few to several in number, successive, 1–2 simultaneous, resupinate, spreading, narrowly cupped.

Range, elevation and habitat: *Lepanthes nautilus* is a Colombian endemic, found in the department of Santander at elevations of 2550 m. It grows epiphytically in cloud forests east of the city of Bucaramanga, towards Berlin. No confirmed bloom-time records could be found, though there is one record of a collection made in flower in May. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* cool.

Comments: The uniquely-shaped flowers of *Lepanthes nautilus* are so distinctive that they are unlikely to be confused with any other species in the genus. Not only are they large, they are beautifully coloured and patterned, hanging from thin, flexuous stems that are much longer than the leaves. Due to the pendent nature of the spikes, we suggest that this species be grown on a mount to best display the flowers, but adequate moisture and humidity is a must. Flowering in cultivation tends to occur between mid-autumn and early spring.



Figure 4.770 (above) The cephalopod-like flower of *Lepanthes nautilus* in profile (Grower: John Leathers).



Figure 4.771 (above) The *Lepanthes nautilus* bloom is curious, but undoubtedly beautiful (Grower: Marni Turkel).

LEPANTHES***Lepanthes nycteris*** Luer & R. Vásquez**Publication:** *Phytologia* 54: 357 (1983)**Etymology:** From the Greek *nycteris* (bat), referring to the resemblance of the inner flower parts with a star-nosed bat.**Morphology:** *Plant* 8–10 cm tall, clumping, branching, erect to suberect. *Ramicaul* 4–7 cm, erect to suberect. *Leaf* 1–2.5 cm long by 0.8–1.5 cm wide, shortly petiolate, broadly elliptical to almost round, apex rounded, lamina erect, leathery. *Inflorescence* a loose raceme, 4–12 cm long including peduncle, lax, descending to pendent. *Flower* 1.8–2.2 cm tall, singly successive, many in number, resupinate, lip with inwardly slanted, lateral lobes, pedicels minute.**Range, elevation and habitat:** *Lepanthes nycteris* occurs in Bolivia (departments of Cochabamba and La Paz) and Peru. The type was collected in the province of Chapare, department of Cochabamba, Bolivia, between the municipalities of Cochabamba and Villa Tunari. It was found growing epiphytically in a cloud forest at 1750 m altitude. No other habitat information or bloom-time records could be found, but it is likely this species blooms at any time of year. Conservation status unknown.**Culture recommendations:** See general culture notes for the genus. *Temperature* cool.**Comments:** The boldly marked, wonderfully shaped, fuzzy little flowers of *Lepanthes nycteris* have made this a favourite of many growers. It is easy to grow and relatively available. Not easily confused with any other *Lepanthes*, the lip has bi-angled, pubescent lateral lobes, evidently unique in the genus (Luer, 1983). In cultivation, this species blooms frequently throughout the year.**Figure 4.772 (above)** *Lepanthes nycteris* flowers are insect-like and truly unmistakable (Grower: Marni Turkel).**Figure 4.773 (above)** The fuzzy flower of *Lepanthes nycteris* (Grower: San Francisco Conservatory of Flowers).

LEPANTHES

Lepanthes ophioglossa Luer

Publication: *Phytologia* 54: 358 (1983)

Etymology: From the Greek *ophio* (snake) and *glossa* (tongue), in reference to the forked synsepal

Heterotypic synonyms: *Lepanthes drymocharis* Luer & Hirtz.

Morphology: Plant 4–8 cm tall, clumping, branching, erect. *Ramicaul* 2.5–5 cm, erect. *Leaf* 1.5–3 cm long by 0.6–1 cm wide, minutely petiolate, oblong elliptical, apex obtuse, lamina erect, leathery. *Inflorescence* a loose raceme, to 9 cm long, longer than leaves, including 2–3 cm peduncle, flexuous, distichous. *Flower* 1.3–1.5 cm tall, several in number, successive, often 2 open simultaneously, resupinate, spreading widely, dorsal sepal as broad as lateral sepals combined. This species is listed as vulnerable on the IUCN Red List.

Range, elevation and habitat: *Lepanthes ophioglossa* is found in the province of Carchi, northwestern Ecuador, at elevations of 1400–2300 m, where it grows epiphytically in cloud forest. The type specimen was collected in a forest remnant above Maldonado, at an elevation of 2300 m. There are bloom-time records for February and March in nature

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: *Lepanthes ophioglossa* has handsome, dark flowers with a contrasting, more brightly coloured lip and petals, as well as an elegant shape. Many plants in collections are still labelled incorrectly as *L. drymocharis*. This species presents no cultural problems and should be more widely grown. Flowering occurs most frequently between mid-summer and mid-winter in cultivation.

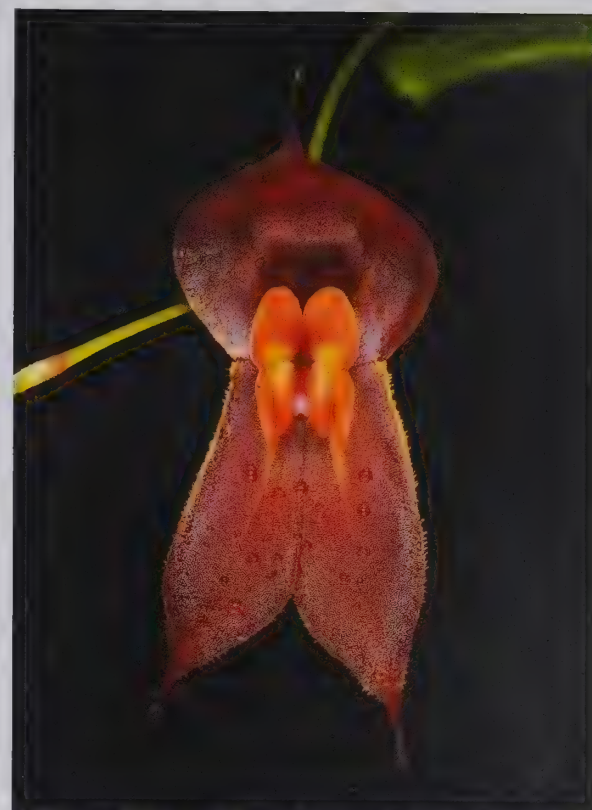


Figure 4.774 (above) *Lepanthes ophioglossa* is an Ecuadorian taxon with handsome dark flowers (Grower: Russ Varnado).



Figure 4.775 (above) *Lepanthes ophioglossa* grows and flowers readily in cultivation (Grower: Russ Varnado).

LEPANTHES

Lepanthes oreocharis Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 10: 483 (1912)

Etymology: From the Greek *oreo* (mountain) and *charis* (graceful, pleasant), a reference to the habitat where this species occurs.

Morphology: *Plant* 4–11 cm tall, clumping, branching, erect to suberect. *Ramicaul* 1.5–7 cm, erect to suberect. *Leaf* to 7 cm long by 1.2 cm wide, subsessile, elliptic to linear to lanceolate, apex obtuse to acute, lamina hanging or spreading, leathery, green mottled with purple, purplish punctate underneath. *Inflorescence* one to several racemes, 1.2–3 cm long including peduncle, shorter than leaves, lax to descending, flexuous, distichous. *Flower* to 2.2 cm tall, one to several in number, successive, resupinate, colour varies from greenish yellow, sometimes with reddish brown suffusion in the dorsal sepal, to red, orange and yellow in the petals.

Range, elevation and habitat: *Lepanthes oreocharis* occurs in Mexico (state of Chiapas), Guatemala (departments of Quetzaltenango, Sololá and Zacapa) and Nicaragua (departments of Boaco, Jinotega and Matagalpa) at elevations ranging from 700 to 3500 m. It grows epiphytically in mixed forest, montane rainforest, high evergreen cloud forest, pine-oak-fir forest and forested mountain ridges and slopes. *Lepanthes oreocharis* is locally abundant in Mexico and can be found in dense carpets in evergreen cloud forests, as well as on the bases of alder trunks. Beyond the May date for the collection of the flowering type specimen, no confirmed bloom-time records could be found. There are collection records from elevations as low as 5 m in the department of Rio San Juan, Nicaragua, but it is possible these were misidentified. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cold, depending upon provenance of plant.

Comments: Noticeably variable in both plant form and flower colour, *Lepanthes oreocharis* is an under appreciated and generally overlooked species. The blooms are actually quite colourful, some with greenish-yellow sepals and petals and the lip a mixture of red, orange and yellow; others may be entirely yellow. The species also has attractive, long, narrow, leathery leaves with a lovely grey stippling on the underside. *Lepanthes oreocharis* is quite floriferous, blooming successively for months on end. It is found across a wide range of elevations in nature, and plants can be grown under intermediate to cold conditions. Flowers can be expected between mid-summer and early spring, and likely at other times as well.

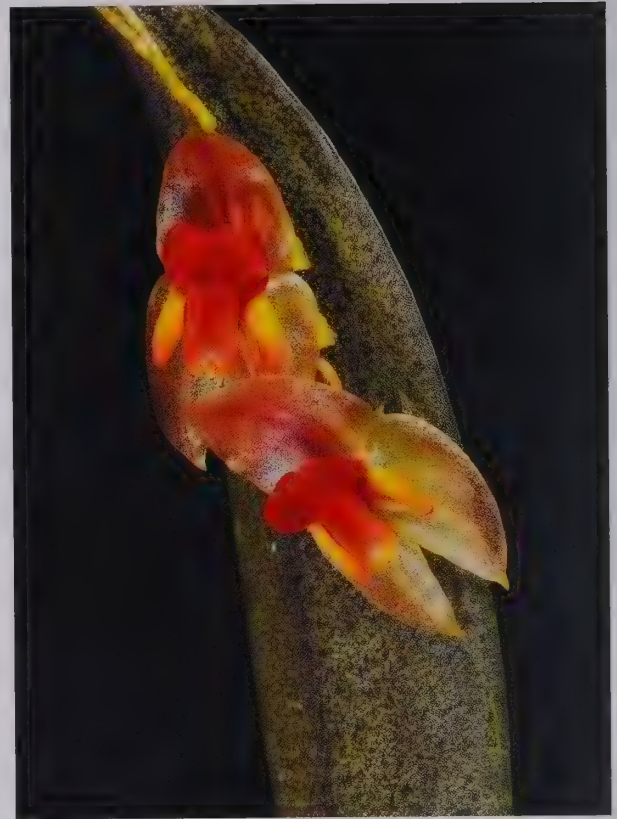


Figure 4.776 (above) *Lepanthes oreocharis* flowers are colourful, but forms vary markedly (Grower: Marni Turkel).



Figure 4.777 (above) A yellow form of *Lepanthes oreocharis* (Grower: Marni Turkel).

Figure 4.778 (facing page) A striking peach, yellow and red form of *Lepanthes oreocharis* (Grower: John Leathers).



LEPANTHES***Lepanthes polytricha* Luer****Publication:** *Phytologia* 54: 364 (1983)

Etymology: From the Greek *poly* (many) and *tricho* (hair-like) referring to the many kinds of hairs found on the flowers.

Morphology: *Plant* 5.5–13 cm tall, clumping, branching, erect. *Ramical* 3–9 cm, erect to suberect, sometimes obliquely so, enclosed in sheaths. *Leaf* 2.5–4 cm long by 2.5–4 cm wide, shortly petiolate, transversely cordate-ovate to nearly orbicular, apex obtuse to rounded, lamina erect, leathery, dorsally minutely verrucose, ventrally pubescent. *Inflorescence* a congested raceme, 2 cm long, shorter than leaf, from fascicle at apex of ramical behind leaf. *Flower* 0.7–0.8 cm tall, few in number, successive, resupinate, widely spreading, pedicel minute.

Range, elevation and habitat: *Lepanthes polytricha*, an Ecuadorian endemic, occurs in the provinces of Loja and Morona-Santiago where it grows epiphytically in cloud forest at elevations of 1700–2500 m. It is considered uncommon. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: The intricate little flowers of *Lepanthes polytricha* are truly incredible; it is unfortunate that this marvellous orchid is uncommon to rare in collections. The smallish blooms, hidden on the backs of the leaves, are multi-hued, plushly pubescent and of such an elaborate form that it leaves one wondering what kind of pollinator this extravagant flower could possibly attract! This species can bloom at any time of the year, and is often seen to be bearing flowers.



Figure 4.779 (above) The flowers of *Lepanthes polytricha* are truly striking in shape (Grower: John Leathers).

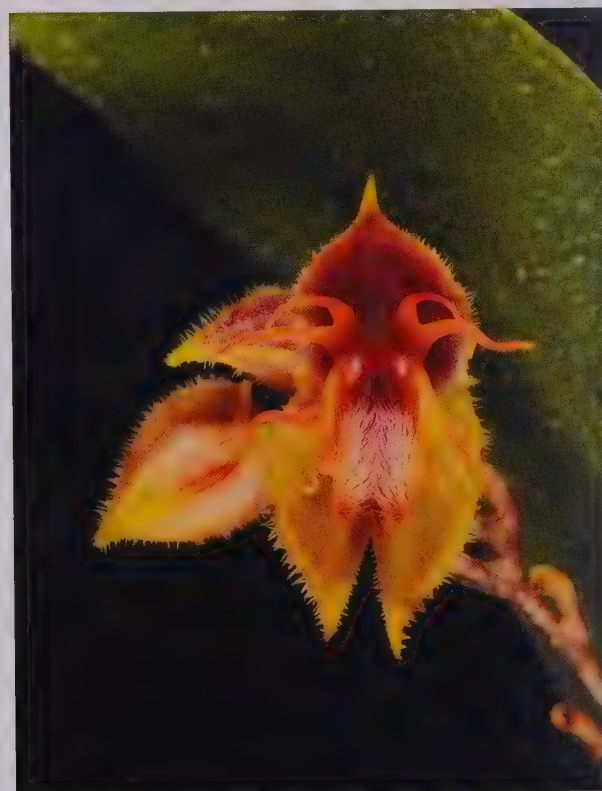


Figure 4.780 (above) *Lepanthes polytricha*, an Ecuadorian endemic, bears fuzzy flowers (Grower: John Leathers).

Figure 4.781 (facing page) The elaborate form of the *Lepanthes polytricha* bloom in detail (Grower: John Leathers).



LEPANTHES***Lepanthes quadricornis*** Luer & R.Escobar**Publication:** *Orquideologia* 19: 108 (1994)**Etymology:** from the Latin *quadri* (four) and *cornis* (horn), in reference to the forked petals.**Morphology:** *Plant* 5 cm tall, clumping, branching, erect. *Ramicaul* 3 cm long, suberect to spreading, to nearly horizontal. *Leaf* to 1.7 cm long by up to 2 cm wide, minutely petiolate, broadly oblong-elliptic, apex obtuse, lamina spreading to pendent, leathery. *Inflorescence* a congested raceme, 1.2–1.5 cm long, distichous, often resting on dorsal side of leaf. *Flower* 1.2–1.5 cm tall, few in number, successive, resupinate, widely spreading, deep sepaline cup, varies in amount of white on the sepals and length of sepaline tails, pedicel minute.**Range, elevation and habitat:** The type specimen of *Lepanthes quadricornis* was apparently collected near Ricaurte in the department of Nariño, Colombia, at an elevation of 2000 m. No habitat data were provided with the type collection, but it is now known to grow epiphytically in wet lower montane cloud forest at elevations between 1600–2000 m. Only one bloom-time record for July was found, although it is likely it can bloom in any month. Conservation status unknown.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** The “four horned *Lepanthes*” is named for its unusual, characteristically forked petals. This species has stunning, proportionately large flowers that are brightly coloured with distinctive stripes. Although not inexpensive, this species is fortunately readily available. This member of section *Marsipanthes* is one of the finest of the genus, with much to recommend it. *Lepanthes quadricornis* may bloom at any time of year.**Figure 4.782 (above)** The relatively large flowers of *Lepanthes quadricornis* (Grower: Russ Varnado).**Figure 4.783 (above)** *Lepanthes quadricornis*, a Colombian endemic, is strikingly coloured (Grower: Russ Varnado).**Figure 4.784 (facing page)** *Lepanthes quadricornis* is named after its forked petals (Grower: Russ Varnado).



LEPANTHES***Lepanthes ribes* Luer****Publication:** *Selbyana* 3: 14 (1976)

Etymology: The specific epithet alludes to the resemblance of the flowers to those of certain species in the genus *Ribes* (the gooseberries and currants).

Morphology: *Plant* 4.5–9.5 cm tall, clumping, branching, erect. *Ramicaul* 2.5–6 cm, erect. *Leaf* 2–3.5 cm long by 0.8–1.5 cm wide, minutely petiolate, oblong-elliptic, apex sub-acute, lamina erect, leathery. *Inflorescence* a raceme, to 6 cm long including 2–3.5 cm peduncle, longer than leaves, descending to pendent, distichous, rests on dorsal surface of leaf or pendent. *Flower* 1.2–1.5 cm tall, several in number, successive, resupinate, not spreading widely, sepals connate for half of length, dorsal sepal hooded, lateral sepals diverging near apex, recurved, petals erect, green, pedicels abbreviate. Flower colour varies from burgundy to brownish to orangey to greenish-yellow.

Range, elevation and habitat: *Lepanthes ribes* occurs in the department of Valle del Cauca in southwestern Colombia, and in the provinces of Pichincha and Carchi in northwestern Ecuador, at elevations between 1800–2400 m. It is usually epiphytic, but is occasionally found growing as a terrestrial on road cuts. This species may bloom in any month in nature. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate-cool to cool.

Comments: Another member of section Marsipanthes, *Lepanthes ribes* is probably closest to *L. carunculigera* Rchb.f. and *L. caprimulgus* Luer. A surprisingly variable species, it comes in a selection of distinctive colour forms. It has a deep sepaline tube, but the petals and lips are visible if one looks inside the flower. Relatively available though not inexpensive, this species, with its relatively large flowers, is sure to please any collector of miniatures. Flowering may take place at any time of year in cultivation.



Figure 4.785 (above) The variable flower of *Lepanthes ribes*, of Colombia and Ecuador (Grower: Russ Varnado).



Figure 4.786 (above) An orange form of *Lepanthes ribes* (Grower: Russ Varnado).

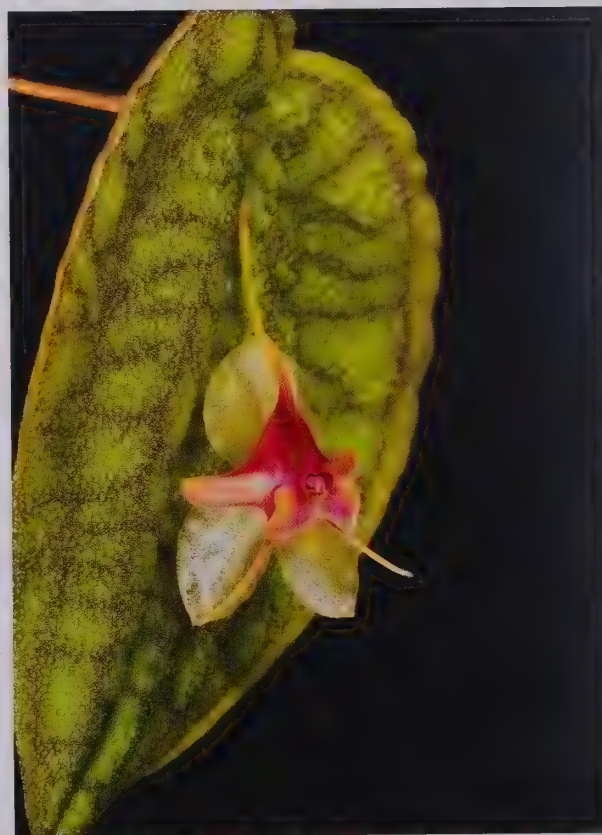


Figure 4.787 (above) *Lepanthes ribes* creamy white with reddish-brown venation (Grower: J & L Orchids).

Figure 4.788 (below) *Lepanthes ribes* creamy white with intense red blush and venation (Grower: Marni Turkel).

Figure 4.789 (above) *Lepanthes ribes* pale yellow with brown-tinged veins (Grower: Kathy Parker).

Figure 4.790 (below) *Lepanthes ribes* creamy white with dark purple flush (Grower: Petite Plaisance).

LEPANTHES***Lepanthes saltatrix* Luer & Hirtz****Publication:** *Monogr. Syst. Bot. Missouri Bot. Gard.* 61(3): 150 (1996)**Etymology:** From the Latin *saltatrix* (suggestive of a female dancer), referring to the appearance of the flowers.**Morphology:** *Plant* 4–6 cm tall, clumping, branching, erect. *Ramical* 2.5–4 cm, erect to suberect. *Leaf* 1.8–2.2 cm long by 1.5–1.8 cm wide, sessile, ovate, apex sub-acute, lamina spreading to hanging, thinly leathery, reticulate, pattern reticulate-tessellate, margin entire, greyish-purple. *Inflorescence* a congested raceme, 1–1.5 cm long, including 0.2–0.5 cm peduncle, rests on dorsal surface of leaf. *Flower* to 1 cm tall, several in number, successive, resupinate, widely spreading, petals complex, large, to 1 cm, pedicel minute.**Range, elevation and habitat:** *Lepanthes saltatrix* occurs in lowland western Ecuador (provinces of Esmeraldas and Manabi) at elevations of 300–1300 m. It grows epiphytically in lower montane wet forest and cloud forest, and occurs sympatrically with its close relatives, *Lepanthes calodictyon* Luer & Hirtz, *L. tentaculata* Luer & Hirtz and *L. volador* Luer & Hirtz. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general culture notes for the genus. *Temperature* warm-intermediate to intermediate.**Comments:** It is hard to come up with enough positive adjectives to describe this species. A close relative of another remarkable species, *Lepanthes calodictyon*, *L. saltatrix* is no less stunning. The foliage is magnificent, a delicate, greyish-green with purplish tessellation, but lacks the undulate margins seen in *L. calodictyon*. However, the flowers of *L. saltatrix* are certainly more impressive; they are two to three times larger, and are incredibly colourful and complex, resembling some sort of fantastic insect sitting on the leaf, poised for flight. Interestingly, *L. saltatrix* grows with at least three other species that all bear patterned leaves, the aforementioned *L. calodictyon*, *L. tentaculata* and *L. volador*. *Lepanthes saltatrix* blooms between spring and mid-autumn in cultivation, and probably at other times.**Figure 4.791 (above)** *Lepanthes saltatrix* is a close relative of *L. calodictyon* (Grower: J & L Orchids).**Figure 4.792 (above)** The magnificent *Lepanthes saltatrix* is a native of Ecuador (Grower: Marni Turkel).

LEPANTHES

Lepanthes telipogoniflora Schuit. & A.deWilde

Publication: *Orquideologia* 20: 28 (1996)

Etymology: The specific epithet refers to the proportionately large, flat flowers (Latin *florem*) resembling those of the orchid genus *Telipogon* (Oncidiinae).

Morphology: *Plant* 3–4 cm tall, clumping, branching, erect. *Ramicaul* 0.9–1.1 cm, erect to suberect. *Leaf* to 1 cm long by up to 0.7 cm wide, subpetiolate, ovate, apex obtuse and mucronate, lamina erect to suberect, leathery. *Inflorescence* somewhat congested raceme, longer than leaf, erect to suberect. *Flower* 1.5–2 cm in diameter, to at least 4 in number, successive, resupinate, proportionately large, widely spreading, flat.

Range, elevation and habitat: A Colombian endemic, *Lepanthes telipogoniflora* has been found in the department of Risaralda, in the Cordillera Occidental, between Río San Juan and Río Abuita. It occurs at elevations of 500–1200 m, where it grows epiphytically in very wet, disturbed primary lower montane forest, usually with frequent cloud cover. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* warm-intermediate to intermediate.

Comments: One of the most popular species in the genus, *Lepanthes telipogoniflora* has proportionately huge, flat flowers that intrigue all who see them. Colour variation is not great, ranging from orange to burnt orange, with brighter venation, and the long, narrow petals are fimbriate and red in colour. This species is now regularly available, and is perfect for intermediate conditions provided they are humid, moist and shady. Flowering occurs most frequently between late winter and mid-summer, but plants can also bloom at other times.

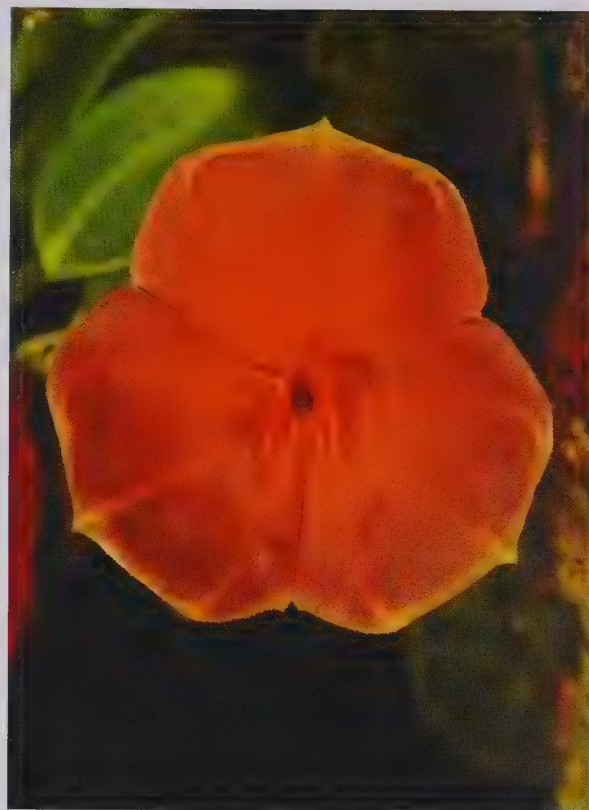


Figure 4.793 (above) The large, flat blooms of *Lepanthes telipogoniflora* are truly captivating (Grower: Cindy Hill).



Figure 4.794 (above) *Lepanthes telipogoniflora* flowers are generally orange in colour, but they are beautiful and no less engaging for the lack of variation (Grower: Marni Turkel).

LEPANTHES

Lepanthes tsubotae Luer & R.Escobar

Publication: *Orquideologia* 19(1): 30 (1993)

Etymology: Named in honour of Shigenobu Tsubota, of Eva Orchids, Pereira, Colombia, who discovered this species.

Morphology: Plant 1.5–2.5 cm tall, clumping, branching, erect. *Ramicaul* to 1.2 cm, erect. *Leaf* 1.1–1.5 cm long by 0.6–0.7 cm wide, minutely petiolate, elliptical to obovate, apex sub-acute to obtuse, apiculate, lamina erect, leathery. *Inflorescence* a congested raceme, to 2.5 cm long including peduncle, erect to suberect, flowers distichous. *Flower* to 1 cm tall, several in number, singly successive, resupinate, large, spread flat, sepals ovate, with tails.

Range, elevation and habitat: The type specimen for this epiphytic species was collected in the wet, lower montane forests above Lago Calima, in the department of Valle del Cauca, Colombia, at an elevation of 1950 m. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* warm-intermediate to intermediate.

Comments: Another proportionately large and flat-flowered species, *Lepanthes tsubotae* is a true gem of a miniature species. The full-shaped flowers bear short tails, and plants may occasionally mass bloom, sometimes to the detriment of the plant. A classic selection, this species epitomises all that makes *Lepanthes* such a popular genus. Blooming can occur in any month of the year in cultivation.



Figure 4.795 (above) The Colombian *Lepanthes tsubotae* is a free flowering taxon with flat blooms (Grower: Marni Turkel).



Figure 4.796 (above) *Lepanthes tsubotae* may mass bloom at the expense of plant health, and is likely to benefit from careful feeding (Grower: Judy Carney).



Figure 4.797 (above) Flowers of *Lepanthes tsubotae* are relatively large and visually arresting (Grower: Marni Turkel).

LEPANTHES

Lepanthes williamsii Salazar & Soto Arenas

Publication: *Orquídea (Mexico City)*, n.s., 12: 139 (1992)

Etymology: Named in honour of Dr. Louis Otho Williams (1908–1991), a native of Jackson, Wyoming, and the author of “The Orchidaceae of Mexico”, as well as over 300 other botanical publications.

Morphology: *Plant* to 11 cm tall, densely clumping, erect. *Ramical* to 7 cm, erect to suberect. *Leaf* 1.5–3 cm long by 0.7–1.4 cm wide, short petiolate, elliptical, apex obtuse, lamina fleshy, ventrally suffused with dense purple spotting. *Inflorescence* 1–2 racemes, to 3 cm long, shorter than or equal to leaves, distichous. *Flower* 0.8–0.9 cm tall, several to many in number, successive, 1, rarely 2, open simultaneously, resupinate, widely spreading.

Range, elevation and habitat: The type specimen for *Lepanthes williamsii* was collected in the state of Chiapas, Mexico, where it grew in a very wet cloud ridge forest of *Pinus pseudostrobus*, *Quercus* spp. and *Alnus* spp., at an elevation of 2860–3000 m. It has also been found in Guatemala (department of Quetzaltenango). The overall elevational range for this species is 1800–3050 m, usually growing low on tree trunks in very wet cloud forest, often in company with *Lepanthes oreocharis*. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: *Lepanthes williamsii* is unusual in that the flowers are of a solid green colour, while the petals and lip are of different shades. It is not commonly available, but is highly desirable. If obtained, the propagation and dispersal of this beautiful species among collections is encouraged. In cultivation, flowering usually occurs between late winter and late summer, but the species may bloom sporadically at other times.



Figure 4.798 (above) *Lepanthes williamsii*, of Mexico, produces wonderful, green flowers (Grower: John Leathers).



Figure 4.799 (above) A mounted *Lepanthes williamsii* plant in full bloom (Grower: John Leathers).

Lepanthopsis (Cogn.) Ames

Publication: Ames, O., 1933, *Bot. Mus. Leaflet*. 1(9): 3

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Lepanthopsis floripecten* (Rchb.f.) Ames, 1933, *Bot. Mus. Leaflet*. 1(9): 11.

Etymology: From *Lepanthes* and the Greek *opsis* (like), referring to the morphological similarity of this genus to the genus *Lepanthes*, particularly in terms of plant habit and the fact that the ramicauls are covered in lepanthiform sheaths.

Heterotypic synonym: *Expedicula* Luer.

Profile: A genus of over 40 tiny to dwarf epiphytic or lithophytic species ranging from southwestern Florida throughout the Greater Antilles (with many species endemic to Hispaniola), and from southern Mexico to Bolivia and southern Brazil. The genus is found in wet forest, cloud forest and occasionally in semi-dry scrub forest, at elevations of 3–3200 m. The majority of species are generally found between 1000–2000 m.

General plant morphology: Sympodial, clumping to scandent, roots few to many, slender. *Ramicaul* ascending to erect, slender, enclosed in lepanthiform sheaths (tubular, ribbed sheaths with dilated ostia, with rib and rimmed margins of the ostia more or less ciliate and scabrous). *Leaf* shortly petiolate, broadly to narrowly elliptical, apex acute to obtuse, notched with an apiculum in the sinus, lamina leathery, sometimes suffused with purple. *Inflorescence* usually a congested raceme, distichous to secund, shorter to longer than leaf, peduncle erect to descending, borne from near apex of ramicaul. *Flower* one to many in number, usually simultaneous, resupinate or non-resupinate, membranous, more or less ovate, dorsal sepal essentially free or shortly connate to the lateral sepals, petals unlobed, lip entire or rarely trilobed, fleshy, column short, broad, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. Plants may also be potted in moss or a fine bark mix in small pots, but ensure that plants are not overpotted. *Temperature* indicated by species. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet. Use high quality water low in total dissolved solids. *Humidity* high. *Air movement* good. *Propagation* by division or seed. Some species produce adventitious plantlets (keiki) from apex of ramicaul; these may be mounted or potted separately. Fertilise at 1/4 strength weekly. Pleurothallids, including *Lepanthopsis*, are prone to bean yellow mosaic virus (BYMV), which is propagated by aphids. Insure that plants are kept free of these pests.



Figure 4.800 (above) A *Lepanthopsis* sp. specimen plant bearing several hundred perfect little flowers of pinkish purple (Grower: Marni Turkel).

LEPANTHOPSIS

Lepanthopsis acuminata Ames

Publication: *Bot. Mus. Leafl.* 6: 70 (1938)

Etymology: From the Latin *acuminatus* (pointed), referring to the apices of the sepals.

Morphology: *Plant* 3–8.5 cm tall, clumping, branching, erect. *Ramicaul* 2–6 cm tall. *Leaf* 1–2.2 cm long by 0.6–0.8 cm wide, cuneate into 0.2–0.4 cm petiole, oblong-elliptic, apex obtuse, lamina erect to nearly spreading, leathery, occasionally suffused with reddish or purplish. *Inflorescence* a densely-flowered raceme, to 5 cm long including 1.3–3 cm peduncle, more than twice the length of the leaves, 1–2 simultaneous, flowers, two-ranked. *Flower* 0.8 cm tall, many in number, simultaneous, resupinate, widely spreading, flat, lateral sepals connate at base.

Range, elevation and habitat: *Lepanthopsis acuminata* has been found in Colombia (departments of Antioquia, Cauca, Norte de Santander, Tolima and Valle del Cauca), Venezuela (state of Tachira) and Ecuador (provinces of Loja, Morona-Santiago, Napo, Pastaza and Zamora-Chinchipe) at elevations ranging from 700–2800 m. This species is relatively common and grows epiphytically in the wet montane and cloud forests of the Andes mountains.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: *Lepanthopsis* species have always been a popular choice of pleurothallid for collectors, in particular the more densely flowered ones. *Lepanthopsis acuminata* is arguably one of the finest of these, with long, crowded, two-ranked spikes bearing soldier-like rows of crystalline flowers. It is easily identifiable by the inflorescence that is more than twice the length of leaves, the long and pointed sepals, and its heart-shaped lip that surrounds the column. Easy to grow under suitable conditions, a mature plant will have flowers most of the time. An added bonus of *L. acuminata* is the adventitious plantlets (keiki) that form at the base of the leaves, making this little plant easy to propagate and share. This species is probably most similar to *L. acetabulum* Luer, but the latter has long, narrow leaves, and flower spikes that are shorter than the leaves.



Figure 4.801 (above) The incredible, densely flowered, two-ranked inflorescence of *Lepanthopsis acuminata* plant (Grower: Ron Parsons).



Figure 4.802 (above) Flower detail of a *Lepanthopsis* aff. *acuminata* plant with yellow coloured blooms (Grower: Marni Turkel).

LEPANTHOPSIS

Lepanthopsis astrophora (Rchb.f. ex Kraenzl.) Garay

Publication: *Caldasia* 8: 520 (1962)

Etymology: From the Greek *astro* (star) and *phorus* (bearing), a reference to the shape of the flowers.

Homotypic synonym: *Pleurothallis astrophora* Rchb.f. ex Kraenzl.

Morphology: Plant 3.5–9.5 cm tall, clumping, branching, erect. *Ramicaul* 2–7 cm tall, erect. *Leaf* 1.2–2.5 cm long by 0.6–1.5 cm wide, cuneate into 0.2–0.3 cm petiole, elliptical, apex sub-acute, lamina erect, leathery. *Inflorescence* a loose raceme, to 17 cm long including a peduncle to 5 cm, flexuous, flowers two-ranked. *Flower* 0.5–0.7 cm tall, several to many in number, successive with up to 7 or more open simultaneously, resupinate, pale to bright violet, flat, widely spreading, pedicels 0.2–0.4 cm.

Range, elevation and habitat: *Lepanthopsis astrophora* occurs in Venezuela (states of Bolivar, Carabobo, Distrito Federal, Falcón, Miranda, Sucre and Yaracuy) and Colombia (department of Antioquia) at elevations ranging from 700–1900 m. It grows as an epiphyte in wet montane and cloud forests. Conservation status unknown.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate, but many plants in collections thrive when grown under cool conditions.

Comments: This diminutive species can bloom near continuously, with multitudes of beautiful, glistening, garnet-coloured starry flowers, loosely arranged on thin spikes. The majority of plants in collections are divisions of a clone called “Stalky”, a nickname for G. K. C. Dunsterville, who with his wife Nora, explored much of Venezuela, dedicating much of his later life to studying and writing about the orchids of that country. A truly rewarding plant in any collection, it is easy to grow and readily available in the trade.

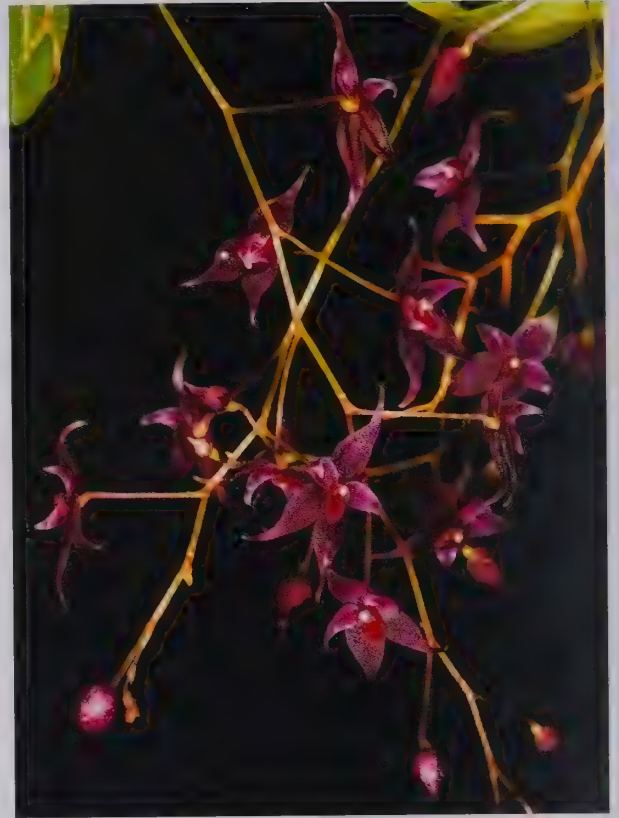


Figure 4.803 (above) The pretty, starry flowers of the aptly named *Lepanthopsis astrophora* (Grower: J & L Orchids).



Figure 4.804 (above) The pretty, starry flowers of the aptly named *Lepanthopsis astrophora* ‘Stalky’ (Grower: J & L Orchids).

LEPANTHOPSIS

Lepanthopsis floripecten (Rchb.f.) Ames

Publication: *Bot. Mus. Leagl.* 1(9): 11 (1933)

Etymology: From the Latin *florem* (flower) and *pecten* (comb), referring to the appearance of the inflorescence.

Homotypic synonyms: *Pleurothallis floripecten* Rchb.f., *Humboltia floripecten* (Rchb.f.) Kuntze.

Heterotypic synonyms: *Lepanthes secunda* Barb.Rodr., *Pleurothallis unilateralis* Cogn., *Lepanthopsis unilateralis* (Cogn.) Porto & Brade, *Lepanthopsis secunda* (Barb.Rodr.) Hoehne.

Morphology: *Plant* 3.5–15 cm tall, clumping, branching, erect. *Ramicaul* 2–10 cm tall, erect. *Leaf* 1.5–4.5 cm long by 0.6–1.7 cm wide, shortly petiolate, oblong-elliptic, apex sub-acute to obtuse, lamina erect, leathery. *Inflorescence* a densely-flowered raceme, 4.5–9 cm long, including 2–6 cm peduncle, more than twice the length of the leaf, flowers two-ranked. *Flower* to 0.8 cm tall, many in number, simultaneous, resupinate, widely spreading. Flower colour may vary from light brown to light purple.

Range, elevation and habitat: The most widely distributed species of the genus, *Lepanthopsis floripecten* has been found in Mexico (state of Chiapas), Guatemala (departments of Baja Verapaz and Sacatepéquez), El Salvador (department of Chalatenango), Nicaragua (department of Matagalpa), Honduras (departments of Comayagua, Francisco Morazán and Olancho), Belize (district of Cayo), Costa Rica (province of Cartago), Panama, Colombia (departments of Antioquia and Valle del Cauca), Venezuela (states of Amazonas, Bolívar, Distrito Federal, Sucre and Trujillo), Ecuador (provinces of Loja, Morona-Santiago and Zamora-Chinchipe), Peru (department of Cusco), French Guiana and Brazil (phytogeographic regions of Amazônia and Mata Atlântica; states of Espírito Santo, São Paulo, Rio de Janeiro, Paraná and Santa Catarina). It is a locally common species, occurring at elevations ranging from 300–2400 m. It grows epiphytically on mid-level branches in moist, humid, primary montane forest, cloud forest and scrub forest.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: Another of the tightly-flowered *Lepanthopsis* species, *L. floripecten* has inflorescences that carry many sparkling, translucent, gem-like flowers in two back-to-back rows. Not particularly common in collections, this species is a choice selection for those with intermediate growing conditions, though it can be grown cool. *Lepanthopsis floripecten* may flower in any month of the year, but tends to bloom most frequently in mid-autumn to mid-winter in cultivation.



Figure 4.805 (above) The pretty flowers of *Lepanthopsis floripecten* are translucent, revealing the peduncle to the rear (Grower: Lilian Severin).

LEPANTHOPSIS

Lepanthopsis melanantha (Rchb.f.) Ames

Publication: *Bot. Mus. Leafl.* 1(9): 19 (1933)

Etymology: From the Greek *melas* (black) and *anthos* (flower) referring to the dark flower colour.

Homotypic synonyms: *Pleurothallis melanantha* Rchb.f.

Heterotypic synonyms: *Pleurothallis floripicta* Lindl., *Lepanthes brevipetala* Fawc. & Rendle, *Lepanthes harrisii* Fawc. & Rendle, *Lepanthopsis quisqueyana* Dod.

Morphology: *Plant* 3–7.5 cm tall, clumping, branching, erect. *Ramicaul* 1.5–5 cm, erect. *Leaf* 1.2–2.5 cm long by 0.6–1.3 cm wide, shortly petiolate, oblong-elliptic, apex sub-acute to rounded, lamina erect, leathery. *Inflorescence* a densely flowered raceme, 2.5–4 cm long, including 1.5–3 cm peduncle, flowers two-ranked. *Flower* 0.3–0.4 cm tall, two to several in number, simultaneous, resupinate, spreading widely.

Range, elevation and habitat: A widespread Caribbean species, *Lepanthopsis melanantha* occurs in southern Florida, Cuba, Dominican Republic, Haiti and Jamaica, at elevations ranging from near sea level to 1500 m. Relatively common in most of its range, it is quite rare in the Fakahatchee Strand swamp of southern Florida. This species is found in moist tropical forest and wet montane forest. It may bloom in any month of the year.

Culture recommendations: See general culture notes for the genus. *Temperature* warm to intermediate.

Comments: Though not uncommon in nature, *Lepanthopsis melanantha* is not frequently seen in cultivation. Part of its range includes southernmost Florida, where it is quite rare, making it one of the few pleurothallids to occur in the United States. The individual flowers are a lovely, dark purplish-red, making them hard to see from a distance. A perfect pleurothallid for a grower with warm to intermediate conditions, this species usually flowers between autumn and mid-winter, but may also bloom at other times.



Figure 4.806 (above) The ranked flowers of *Lepanthopsis melanantha* in detail. This widespread Caribbean species, which occurs in the United States (Florida), is not often seen in cultivation (Grower: MarniTurkel).

LEPANTHOPSIS

Lepanthopsis pristis Luer & R.Escobar

Publication: *Orquideologia* 16: 27 (1986)

Etymology: From the Greek *pristis* (saw), referring to the fancied similarity of the inflorescence to the toothed blade of the sawfish genus *Pristis*.

Morphology: *Plant* 5–14 cm tall, clumping, branching, erect. *Ramicaul* 3–10 cm, erect. *Leaf* 2–4 cm long by 0.9–1.5 cm wide, minutely petiolate, elliptical, apex acute to obtuse, lamina erect, leathery. *Inflorescence* a densely flowered raceme, 5–8 cm long including peduncle, flowers two-ranked. *Flower* to 0.8 cm tall, many in number, simultaneous, resupinate, widely spreading.

Range, elevation and habitat: This species is known from only one locality in the Central Cordillera of Colombia, department of Antioquia, in the vicinity of the Río Cocorna at elevations near 1650 m. No additional information regarding the habitat or conservation status of this species is available, but due to its limited distribution, it must be considered vulnerable. The type specimen was collected in flower in August, but is likely to bloom at any time in nature as it does in cultivation.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate, but plants also seem to do well under cool conditions.

Comments: *Lepanthopsis pristis* is a particularly lovely species, with two-ranked, perfectly aligned, translucent, yellowish-green, crystalline flowers offset by slightly darker, contrasting yellow petals and lip. Curiously, Luer (1991) stated that this species can be “distinguished from others in the genus by the snow white flowers”; perhaps the white colouration he observed was an artefact of specimen preparation, as many floral pigments degrade as plant specimens dry. Two specific, distinguishing characteristics are the lateral sepals, which are free except at the base, and the rounded petals and lip. *Lepanthopsis pristis* may bloom in any month in cultivation, and a mature plant may bloom almost constantly.

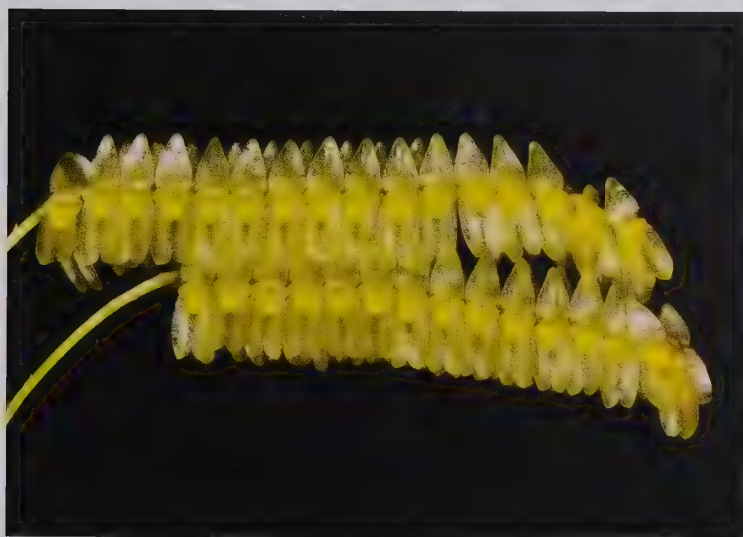


Figure 4.807 (above) The flowers of the lovely *Lepanthopsis pristis* are ranked with almost mathematical precision (Grower: Ron Parsons).



Figure 4.808 (above) The fine, translucent flowers of *Lepanthopsis pristis* in detail (Grower: Ron Parsons).

Leptotes Lindl.

Publication: Lindley, J., 1833, *Edwards's Bot. Reg.* 19: t. 1625

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Leptotes bicolor* Lindl., 1833, *Edwards's Bot. Reg.* 19: t. 1625.

Etymology: From the Greek *leptotes* (gracefulness, slenderness, delicateness), referring to the narrow leaves.

Profile: A small genus of approximately 9 dwarf to miniature, epiphytic species that are found in the Mata Atlântica phytogeographical region of Brazil, Paraguay and northeastern Argentina.

General plant morphology: Sympodial, clumping to shortly repent, branching, sometimes mat-forming. *Pseudobulb* short, cylindrical, leaf apical, one sometimes two in number. *Leaf* sub-terete, sulcate, rigid, leathery, fleshy, rugose. *Inflorescence* a raceme, lax to erect, terminal. *Flower* one to few in number, simultaneous, resupinate, sepals and petals subsimilar, sub-equal, free, spreading, lip tri-lobed, column short, pollinia 6, four large and two small, viscidium minute.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. Although plants may be grown in pots, they thrive on mounts. The roots require good air circulation and dislike continuous moisture. *Temperature* intermediate. *Light* light shade. *Watering* water frequently, but allow to dry briefly between waterings, ensuring that the roots dry completely. Reduce frequency of watering somewhat during the winter months. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency during the winter months.



Figure 4.809 (above) The freely flowering *Leptotes bicolor*. This mounted specimen plant is almost entirely covered with handsome white and purple blooms of substantial size (Grower: Judy Carney).

LEPTOTES***Leptotes pauloensis* Hoehne**

Publication: *Bol. Agric. (São Paulo)* 34: 620 (1933 publ. 1934)

Etymology: Named after the state of São Paulo, Brazil, and terminating with the Latin suffix *-ensis* (from).

Morphology: *Plant* to 4.5 cm tall, clumping. *Pseudobulb* 0.5 cm tall by 0.2 cm wide, subcylindrical, broader towards apex, obscured by papery bracts, usually unifoliate, younger growths sometimes bifoliate. *Leaf* to 4 cm long by 0.4 cm wide, linear, apex acute to obtuse, often apiculate, lamina erect to suberect, straight to slightly incurved, rigid, faintly rugose, often suffused with purple pigment. *Inflorescence* a raceme, to 1 cm long, erect, filiform. *Flower* 1–2 cm wide, 1 to occasionally 2 or rarely 3 in number, successive, resupinate, though often orientated in any direction, spreading, campanulate, lip flat or with margins down turned, sessile at base, apex notched. Flowers vary in overall colour from a very pale pink through to dark pink, with lip side-lobes of pink to nearly purple, and a mid-lobe with a variable intensity of yellow colouration and variable shape, ranging from flat to recurved.

Range, elevation and habitat: *Leptotes pauloensis* is a Brazilian endemic that grows in the states of Espírito Santo, Rio de Janeiro, São Paulo, Paraná and Santa Catarina at elevations of 700–1000 m. It is a locally common epiphyte in montane rainforest. This species blooms in winter in nature.

Culture recommendations: See general culture notes for the genus.

Comments: All of the species in the genus are dwarf to miniature plants and are highly collectable. A jewel of a species, *Leptotes pauloensis* is common, readily available, easy to grow and, moreover, floriferous. In cultivation, the cute flowers last for 2–3 weeks, but mature plants can easily bloom for a few months, typically during the winter, and sporadically at other times. It is best to keep water off the flowers as they will last significantly longer. The charming plants have nearly terete, short, finger-like leaves, and when out of bloom are virtually indistinguishable from *L. tenuis*. Unfortunately, many people looking for the latter species, which is much rarer, often end up with *L. pauloensis*. Another similar species, albeit a questionable one, *L. harryphillipsii* Christenson, is supposedly distinguished by its noticeably larger flowers, narrower petals and sepals, the distinctly wedge-shaped base from which the mid-lobe of the lip arises, and the acute apex of the same. Christenson observes in his description of *L. harryphillipsii* that the sampling size was far too small, and that, with new information, some authors might come to regard it as a subspecies of *L. pauloensis*.



Figure 4.810 (above) Pinkish blooms of *Leptotes pauloensis* (Grower: Ron Parsons).



Figure 4.811 (above) The pristine flowers of *Leptotes pauloensis* f. *alba* (Grower: Andy's Orchids).

Figure 4.812 (overleaf) A pink *Leptotes pauloensis* bloom (Grower: Ron Parsons).



LEPTOTES

Leptotes tenuis Rchb.f.

Publication: *Hamburger Garten – Blumenzeitung* 21: 296 (1865)

Etymology: From the Latin *tenuis* (thin, fine, slender), referring to the narrow leaves.

Heterotypic synonyms: *Leptotes minuta* (Rolfe) Rolfe, *Tetramicra minuta* Rolfe.

Morphology: Plant to 6 cm tall, creeping. *Pseudobulb* to 1 cm long by 0.2 cm wide, subcylindrical, unifoliate. *Leaf* to 5 cm long by up to 0.4 cm wide, linear, apex acute to obtuse, apiculate, lamina straight to incurved, erect to suberect, rugose, sometimes suffused with purple. *Inflorescence* a raceme, to 5 cm long, erect, filiform, with several nodes along its length. *Flower* 0.8–1.2 cm wide, one to two in number, successive or occasionally simultaneous, resupinate, widely spreading. Flowers vary in colour from creamy yellow to light yellow, and the plum-coloured blotch on the lip varies in size or is sometimes entirely absent.

Range, elevation and habitat: *Leptotes tenuis* occurs in the southern Brazilian states of Espírito Santo, São Paulo, Santa Catarina and Rio de Janeiro, at elevations of 700–1000 m. It grows as an epiphyte in cool montane rainforest. It is sometimes found in large colonies, but is considered rare overall. *Leptotes tenuis* blooms in October and November. Conservation status unknown.

Culture recommendations: See general culture notes for the genus.

Comments: *Leptotes tenuis* has attractive, diminutive flowers of a lovely, soft yellow, the contrasting white lip bearing a variably sized, plum-coloured spot. It tends to flower in cultivation between late autumn and early spring. A highly sought after species, *L. tenuis* is also rare in cultivation, even in its home country, Brazil. As mentioned under *L. pauloensis*, many people have purchased plants labelled as *L. tenuis* only to discover that they have *L. pauloensis* once blooming occurs. To confound the issue, even plants displayed at orchid shows are occasionally labelled incorrectly. A similar species, *L. vellozicola* Van den Berg, E.C.Smids & Marçal, differs from *L. tenuis* by its smaller plant and flower, and by its lip, which bears two basal lamellae and a callus at the apex. *Leptotes tenuis*, in contrast, has short, narrow lamellae on the lip and lacks the apical callus. Interestingly, *L. vellozicola* is the only species in the genus that grows on *Vellozia* in nature; it comes from the southern portion of the Chapada Diamantina region in the state of Bahia, Brazil, where it grows in campos repestres (montane subtropical savanna) at 900 m, a region subject to frequent frosts.



Figure 4.813 (above) *Leptotes tenuis* produces lovely, yellow coloured flowers (Grower: Ron Parsons).

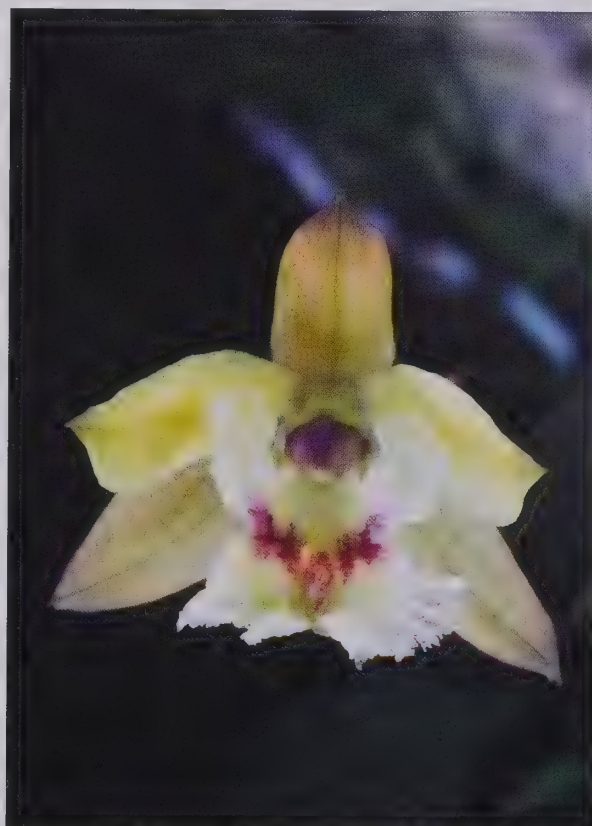


Figure 4.814 (above) Flowers of *Leptotes vellozicola* are fairly similar, but nonetheless distinct (Grower: Ron Parsons).

LEPTOTES

Leptotes unicolor Barb.Rodr.

Publication: *Gen. Spec. Orchid.* 1: 74 (1877)

Etymology: From the Latin *uni* (one) and *color* (colour), referring to the one coloured flower.

Heterotypic synonym: *Leptotes paranaensis* Barb.Rodr.

Morphology: *Plant* 2–5 cm long, creeping, erect to pendent. *Pseudobulb* small, to 1.5 cm long by 0.2 cm wide, cylindrical, unifoliate. *Leaf* 7 cm long by 0.5 cm wide, linear, apex acute to obtuse, apiculate, lamina erect to suberect, straight to arcuate, often spotted or suffused with purple. *Inflorescence* a raceme, to 0.5 cm, erect to pendent. *Flower* 2–2.8 cm wide, 1–3 in number, simultaneous, resupinate, though the flowers may be orientated in any direction, spreading, campanulate, faintly fragrant. Flowers vary in colour from pale lilac to rich to pale pink or almost white.

Range, elevation and habitat: *Leptotes unicolor* occurs in southeastern Brazil (states of Minas Gerais, Espírito Santo, Santa Catarina and Paraná), Argentina (province of Misiones and Entre Ríos) and Paraguay (state of Alto Paraná), where it grows as an epiphyte in *Araucaria* and *Podocarpus* forests at elevations of 700–1000 m. It is often found on trees along water courses, and though it is considered very common, it is generally not found in large colonies. This species blooms in May and June in Brazil.

Culture recommendations: See general culture notes for the genus.

Comments: One of the most common species of *Leptotes* in cultivation, *L. unicolor* has much to offer collectors. It is readily available, easy to grow, floriferous, and has charming, fragrant flowers. All of the *Leptotes* grow much better when mounted, and look very attractive even when out of bloom. In cultivation, flowering tends to be most frequent between late autumn and mid-winter, but can occur sporadically at other times as well.



Figure 4.815 (above) A pretty *Leptotes unicolor* pink and white form (Grower: Mary Gerritsen).



Figure 4.816 (above) *Leptotes unicolor* growing in situ as a trunk epiphyte in Brazil (Photo: Leonardo Desordi Lobo).

Loefgrenianthus Hoehne

Publication: Hoehne, F. C., 1927, *Bol. Inst. Brasil. Sci.* 2: 352

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Etymology: Named for the Danish Botanist, Dr. Johan A. Löfgren (1854–1918).

Type species: *Loefgrenianthus blanche-amesiae* (Loefgr.) Hoehne, 1927, *Bol. Inst. Brasil. Sci.* 2: 352.

Profile: A monotypic genus from southeastern Brazil.

General plant morphology: Sympodial, see species entry for further details.



Figure 4.817 (above) The flower of *Loefgrenianthus blanche-amesiae*, with its wonderful, intricately coloured labellum (Grower: Ron Parsons).

LOEFGRENIANTHUS***Loefgrenianthus blanche-amesiae* (Loefgr.) Hoehne****Publication:** *Bol. Inst. Brasil. Sci.* 2: 352 (1927)

Etymology: Named for Blanche Ames (1878–1969), artist, feminist, author and inventor, and wife of Professor Oakes Ames of Harvard University. Her drawings accompanied her husband's orchidology research.

Homotypic synonym: *Leptotes blanche-amesiae* Loefgr.

Morphology: *Plant* 2.5–3 cm tall, individual growths, pendent to rambling, seldom branching, new growth emerging from halfway up previous pseudobulb, rhizome to 30 cm, roots pinkish in colour. *Pseudobulb* 0.2 cm tall by 0.1–0.15 cm wide, narrow, elongate, enclosed in semi-persistent papery bracts, leaf apical, unifoliate. *Leaf* to 2 cm long by 0.4 cm wide, shortly petiolate, ovate to linear-oblong, apex obtuse, apiculate, lamina erect, flat, leathery, fleshy, flexible. *Inflorescence* a raceme, much abbreviated, erect, slender, terminal, blooming from the 2–3 most recently matured pseudobulbs. *Flower* 0.8–1 cm wide. 1–2 in number, simultaneous, resupinate, spreading, campanulate, lip saccate, margins fimbriate, pedicel 1 cm. The lip of the flower varies in the intensity of yellow, and may or may not have purple markings along the upper half.

Range, elevation and habitat: *Loefgrenianthus blanche-amesiae* occurs in southeastern Brazil in the states of Minas Gerais, Rio de Janeiro, São Paulo and Paraná, at elevations between 900–2000 m. It grows as an epiphyte on moss and lichen-covered trunks, branches and twigs in shady situations on humid, wet, montane forested slopes. In Rio de Janeiro and São Paulo, *L. blanche-amesiae* is often found in *Araucaria* and *Podocarpus* forests, generally at elevations near 2000 m. This species is less common in Paraná, where it is found at a few localities of somewhat lower elevations (900–1200 m). *Loefgrenianthus blanche-amesiae* blooms in December and is considered very rare in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, small rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species is not suited to pot culture due to the pendent, trailing nature of the plant. *Temperature* intermediate-cool. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet. Use high quality water, low in total dissolved solids. *Humidity* high. *Air movement* good. *Propagation* by division or seed. This very rare species should be propagated whenever possible. Ensure that divisions have well developed roots before disturbing. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency and strength of fertiliser slightly during winter.

Comments: A close relative of *Leptotes*, *Loefgrenianthus blanche-amesiae* is very rare, both in nature and in cultivation. The handsome, clear white flowers are offset nicely by the large, rose-red anther cap and clear yellow lip often marked with reddish-purple. The blooms last for 7–10 days. With



Figure 4.818 (above) *Loefgrenianthus blanche-amesiae* bears flowers singly or in pairs (Grower: Marni Turkel).



Figure 4.819 (above) *Loefgrenianthus blanche-amesiae* blooms have yellow lips marked with purple (Grower: Marni Turkel).

LOEFGRENIANTHUS

a pendent growth habit and pseudobulbs spaced at some distance along the rhizome, this is definitely a species that needs to be grown on a mount. A collector's item for the discerning and eclectic grower, *L. blanche-amesiae* generally flowers during the spring to early summer in cultivation.



Figure 4.820 (above) The flowers of *Loefgrenianthus blanche-amesiae* produce an anther-cap that is coloured a lovely rose-red to purple, contrasting well with the adjacent white and yellow organs (Grower: Marni Turkel).

Macroclinium Barb.Rodr. ex Pfitzer

Publication: Pfitzer, E. H. H., 1889, *Nat. Pflanzenfam.* 2(6): 220

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Macroclinium roseum* Barb.Rodr., 1882, *Gen. Spec. Orchid.* 2: 237.

Etymology: From the Greek *makros* (large) and *klinion* (little bed, couch), referring to the large rostellum of the type species.

Heterotypic synonym: *Sarmenticola* Senghas & Garay.

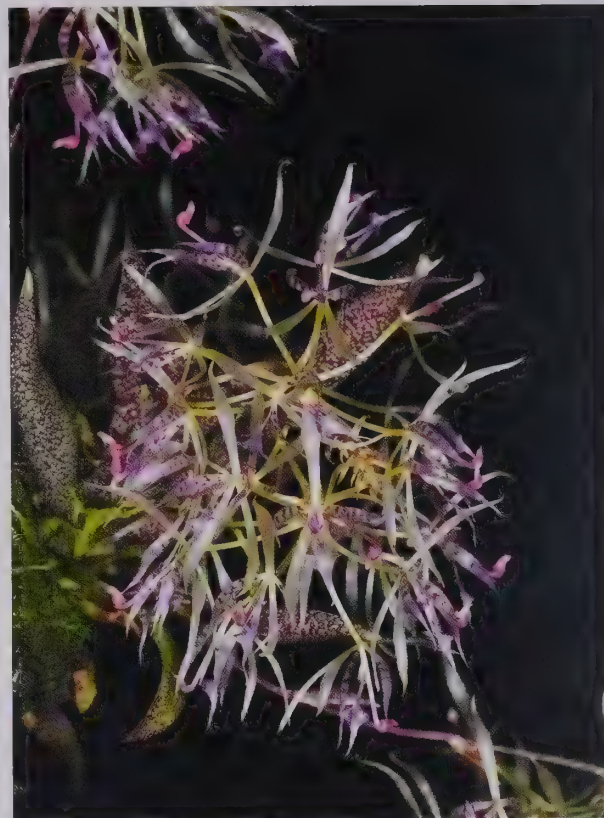
Profile: A genus of over 40 epiphytic species found from Mexico through Central America to tropical South America, but not present in the Antilles.

General plant morphology: *Plant* sympodial, sometimes monopodial, fan-shaped, twig epiphytes. *Pseudobulb* present or lacking; when present, more or less inconspicuous, compressed, ovoid to rounded in profile, generally enclosed and hidden by leafy bracts, leaf apical, unifoliate. *Leaf/leafy bracts* unifacial, elliptical to lanceolate, sharply pointed, strongly bilaterally compressed, distichous, imbricating, articulate (except for those species that are monopodial), conduplicate, progressively smaller towards base, often verrucose or pustulose, often spotted and suffused with reddish or purple. *Inflorescence* racemic to paniculate, rachis sub-umbellate or elongate, laxly pendent, often becoming paniculate by the successive production of secondary branches, peduncle slender, filiform, lateral, axillary. *Flowers* few to many, usually resupinate, erect to nodding, diaphanous, segments narrow, sepals and petals free, spreading, subsimilar, lip three-lobed, mid-lobe clawed, spatulate to sagittate, free or adnate to column, column straight to bent backwards, slender, footless, pollinia 2, on spatulate stipe and minute, circular viscidium, ovary pedicellate.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, small rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. *Plants* of this genus have been seen potted in tiny clay pots, but an extremely fast-draining medium must be used. It is strongly recommend that these plants be grown mounted as the roots require good air circulation and dislike continuous moisture. *Temperature* warm to intermediate for the species discussed in this work. *Light* medium shade. *Watering* allow to dry briefly, but completely between watering. These plants are intolerant of excessive moisture. Reduce watering frequency slightly during the winter. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. Plants are susceptible to infestation by mealy bugs and scale insects which tend to hide in the bases of the fan-like leaves; inspect regularly to guard against outbreaks. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency slightly during winter.



Figure 4.821 (above) The intricate, pendent blooms of a *Macroclinium* sp. from Venezuela (Grower: Russ Varnado).

MACROCLINIUM***Macroclinium aurorae*** Dodson and D.E. Benn**Publication:** *Icon. Pl. Trop.*, II, 1: t. 97 (1989)**Etymology:** Named for Mrs. Aurora Bennett, enthusiast of Peruvian orchids and wife of Dr. David E. Bennett Jr. (1923–2009), Peruvian orchid expert and co-author of *Icones Orchidacearum Peruvianum*.**Morphology:** *Plant* sympodial, to 2.5 cm tall (individual growth), clumping, branching, fan-shaped, erect to pendent. *Pseudobulb* inconspicuous, 0.4 cm tall by 0.1 cm wide, completely obscured by leafy bracts, leaf apical, unifoliate. *Leaf* (and 3–4 similar leafy bracts) to 2.5 cm long by 0.3 cm wide, lanceolate to narrowly ovate, apex acute, lamina erect, rugose with raised, reddish venation. *Inflorescence* a raceme, becoming paniculate through production of successive secondary branches, elongating between bloom cycles, to 3.5 cm long, suberect to descending, lateral from axil of recently matured growth. *Flower* 1–1.2 cm tall, to 15 in number, simultaneous, resupinate, widely spreading.**Range, elevation and habitat:** This species grows as a twig epiphyte in tropical lower montane, seasonally wet forests, with most rain falling between April and September, though plants receive some moisture year round. The type specimen was found in the department of Junín, Peru, at an elevation of 750 m. In nature, *Macroclinium aurorae* blooms between December and February. No conservation status information could be found, but is likely to be considered vulnerable due its localised distribution. This species is listed as endangered on the IUCN Red List.**Culture recommendations:** See general culture notes for the genus.**Comments:** Pure charm, *Macroclinium aurorae* is a small, fan-shaped plant with attractive, raised, reddish venation, but it is its floral fireworks that make this taxon so special. An added bonus lies in its ability to re-bloom from the same flower spike, the inflorescence elongating with age and producing sporadic floral displays. *Macroclinium aurorae* usually flowers during the summer months in cultivation. Whilst not common in collections, this species is available in the trade.**Figure 4.822 (above)** *Macroclinium aurorae* bears heads of many widely spreading flowers (Grower: Cindy Hill).**Figure 4.823 (above)** The pretty *Macroclinium aurorae* is available, but as yet uncommon (Grower: Tom Mudge).

MACROCLINIUM

Macroclinium manabinum (Dodson) Dodson

Publication: *Selbyana* 7: 355 (1984)

Etymology: Named for Manabí, a province in western Ecuador, to which the species is endemic.

Homotypic synonym: *Notylia manabina* Dodson.

Morphology: Plant to 4 cm tall, clustered, branching, fan-shaped, erect. *Pseudobulb* lacking, leaf/leafy bracts 7–10 in number. *Leaf/leafy bracts* to 4 cm long by 0.8 cm wide, obliquely elliptic, apex acute, lamina slightly falcate to incurved, erect, spotted with reddish purple, verrucose/pustulose on both surfaces. *Inflorescence* an umbellate rachis becoming paniculate through production of successive secondary branches, elongating between bloom cycles, to 6 cm long, longer than leaves, sometimes more than one simultaneous inflorescence, suberect to descending, filiform, lateral from axils of leafy bracts. *Flower* to 1.5 cm tall, to 17 in number, simultaneous, resupinate, pedicellate ovary long, slender, filiform.

Range, elevation and habitat: A species endemic to the province of Manabí in western Ecuador, *Macroclinium manabinum* is found at elevations of 100–370 m where it grows as an epiphyte in dry, low elevation, tropical forests. This species may bloom in almost any month in nature. This species is listed as critically endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus.

Comments: In common with a number of species in this genus, *Macroclinium manabinum* produces inflorescences that elongate with age and subsequently re-bloom. Best grown on a mount, using little or no moss around the roots as this species comes from a dry, tropical region. The ball of translucent flowers is spectacular, and these plants may bloom at any time of the year.



Figure 4.824 (above) A globe of *Macroclinium manabinum* blooms (Grower: Mary Gerritsen).



Figure 4.825 (above) A pair of *Macroclinium manabinum* flower heads is a very pretty sight indeed (Grower: Mary Gerritsen).



Figure 4.826 (above) *Macroclinium manabinum* may bloom repeatedly from the same stem (Grower: Hanging Gardens).

MACROCLINIUM

Macroclinium ramonense (Schltr.) Dodson

Publication: *Icon. Pl. Trop.* 10: t. 939 (1984)

Etymology: Named for a region in Costa Rica, Santiago de San Ramón, with the Latin suffix *-ense* (coming from).

Homotypic synonym: *Notylia ramonensis* Schltr.

Morphology: Plant to 7 cm, clumping, branching, fan-shaped, erect to pendent. *Pseudobulb* lacking, leaf/leafy bracts to 5 in number. *Leaf/leafy bracts* 2.5–4 cm long by 0.3–0.5 cm wide, linear-lanceolate. *Inflorescence* a raceme, to 13 cm long, descending, often two simultaneous inflorescences, from axils of upper leafy bracts. *Flower* 2–2.5 cm tall, to 20 in number, simultaneous, resupinate, spreading, campanulate.

Range, elevation and habitat: A species from the province of Puntarenas, Costa Rica as well as Panama, it is found at elevations of 1300–1900 m. *Macroclinium ramonense* grows epiphytically in moist, evergreen forests; occasionally it is found on cultivated citrus trees, pendent from larger branches. The habitat in which this species grows experiences a 4 month dry season. It blooms between June and September in nature. Conservation status unknown.

Culture recommendations: See general notes for the genus.

Comments: Another charming species, *Macroclinium ramonense* produces an elongate inflorescence that bears many diaphanous pink and white flowers. As the plant matures, it can produce numerous side growths, in time developing into a wonderful specimen. Like most species in the genus, the plants perform and look much better when grown mounted. Flowering tends to occur between mid-spring and late summer in cultivation.



Figure 4.827 (above) *Macroclinium ramonense* mounted on wood to marvellous effect (Grower: Ron Parsons).



Figure 4.828 (above) *Macroclinium ramonense* blooms radiate from their supporting raceme (Grower: Cindy Hill).

MACROCLINIUM

Macroclinium xiphophorus (Rchb.f.) Dodson

Publication: *Icon. Pl. Trop.* 10: t. 939 (1984)

Etymology: From the Greek *xipho* (sword) and *phorus* (bearing), referring to the shape of the leaves.

Homotypic synonym: *Notylia xiphophorus* Rchb.f.

Morphology: Plant to 4.5 cm tall, clumping, branching at base, fan-shaped, erect to pendent. *Pseudobulb* 0.7 cm tall by 0.5 cm wide, laterally compressed, sub-rectangular, hidden by imbricating bases of leafy bracts, leaf apical, unifoliate. *Leaf* (and similar leafy bracts) to 4.5 cm long by 0.7 cm wide, linear, apex acute, lamina erect, softly leathery, spotted with reddish purple. *Inflorescence* umbellate rachis becoming paniculate through production of successive, secondary branches, elongating between bloom cycles, to 10 cm long, suberect to descending, lateral from between axils of leafy bracts. *Flower* 1–1.5 cm tall, several in number, simultaneous, resupinate, widely spreading, petals forward-pointing.

Range, elevation and habitat: *Macroclinium xiphophorus* grows in Colombia (department of Antioquia), Ecuador and Peru at elevations of 120–1800 m. No habitat information could be found, but it blooms between spring and summer in nature. This species is listed as data deficient on the IUCN Red List.

Culture recommendations: See general notes for the genus.

Comments: *Macroclinium xiphophorus* (sometimes erroneously spelled *M. xyphophorus*) is uncommon in collections. Nonetheless, it has the charm that is so typical of this genus and, like its congeners, it is relatively easy to grow. Even so, it is important to ensure that the plants dry out sufficiently between watering, and regular checks for insect pests such as mealybugs and scale should be made, as these can rapidly do considerable damage to the plants. *Macroclinium xiphophorus* seems to bloom most frequently between summer and mid-autumn in cultivation.



Figure 4.829 (above) Flowers of the uncommon *Macroclinium xiphophorus*, from Colombia (Grower: Cindy Hill).



Figure 4.830 (above) A host of pendent *Macroclinium xiphophorus* inflorescences in bloom (Grower: Cindy Hill).

Masdevallia* Ruiz & Pav.*Publication:** Ruiz López, H. & Pavon, J. A., 1794, *Fl. Peruv. Prodr.*: 122

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Masdevallia uniflora* Ruiz & Pav., 1798, *Syst. Veg. Fl. Peruv. Chil.*: 238.

Heterotypic synonyms: *Acinopetala* Luer, *Alaticaulia* Luer, *Buccella* Luer, *Byrsella* Luer, *Fissia* (Luer) Luer, *Jostia* Luer, *Luzama* Luer, *Megema* Luer, *Petalodon* Luer, *Portillia* Königer, *Regalia* Luer, *Reichantha* Luer, *Rodrigoa* Braas, *Spectaculum* Luer, *Spilotantha* Luer, *Streptoura* Luer, *Triotosiphon* Schltr. ex Luer, *Zahleria* Luer.

Profile: A genus of nearly 590 species, ranging from southern Mexico to southern Brazil, with the majority of the species occurring in the Andes Mountains of Colombia, Ecuador, Peru and Bolivia.

General plant morphology: *Plant* epiphytic, lithophytic or terrestrial, clumping to creeping rhizomes. *Ramicaul* generally shorter than leaves, enclosed in sheaths, usually erect. *Leaf* elliptic to obovate, shortly petiolate, usually erect, leathery. *Inflorescence* a raceme, peduncle terete or triquetrous, borne from the ramicaul with an annulus a considerable distance below the leaf-stem abscission layer. *Flowers* one to many, simultaneous or successive, resupinate, sepals, large, fused at base for part of their length, usually with apical tails, petals and lip often obscured by the depth of the sepaline tube, lip hinged flexibly from a curved extension at the end of the column foot, column semi-terete, pollinia 2.

Culture recommendations: *Substrate* pot in small pots using high grade New Zealand *Sphagnum* moss or a fine bark mix, or mount on cork oak, rough-barked hardwood, small rough wood shingles, or hard, open type tree fern with moss around the roots. Although most species grow equally well potted or mounted, they often display better when grown mounted. *Temperature* variable according to species. Many species, but particularly the smaller taxa, are highly intolerant of heat stress, and will rapidly lose leaves and possibly expire if exposed to even a single day of overheating. *Light* medium to light shade. *Watering* keep moist and well drained, not wet. Use high quality water, low in total dissolved solids. *Humidity* high. *Air movement* good to brisk. *Propagation* easily by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, particularly *Masdevallia*, are prone to bean yellow mosaic virus (BYMV), which is introduced by aphids. Ensure that plants are kept free of such pests.



Figure 4.831 (above) *Masdevallia citrinella* produces striking, brightly coloured flowers of yellow delicately speckled with red (Grower: Russ Varnado).

MASDEVALLIA

Masdevallia alexandri Luer

Publication: *Phytologia* 46: 347 (1980)

Etymology: Named to honour the collector of this species, Alexander Charles Hirtz (1945-), geologist, orchidologist, president of the Latin American Orchid Council, and Andean representative to the Conservation Committee of the American Orchid Society.

Homotypic synonym: *Rodrigoa alexandri* (Luer) Braas.

Morphology: Plant 5–9 cm tall, clumping, branching, erect. *Ramicaul* to 1 cm long. *Leaf* 3.5–6 cm long by 1.5–2 cm wide, elliptical, apex acute, lamina thin, petiole 1.5–3 cm long. *Inflorescence* a congested raceme, peduncle 8–9 cm long, erect, filiform, originating from low on the ramicaul. *Flower* 5–7 cm tall, 1–3 (rarely more) in number, successive, widely spreading, sepaline cup shallow, dorsal sepal hooded, lateral sepals free for most of their length, all sepals constricting abruptly at apices into proportionately very long, thin, straight tails. This species does not vary much, though there are subtle differences in colour, patterning and the length of the sepaline tails.

Range, elevation and habitat: *Masdevallia alexandri* occurs in a small area of northwestern Ecuador near the town of Mindo, in the province of Pichincha, at elevations of approximately 2600 m. It grows as an epiphyte in moist, cool, montane cloud forest and can bloom in any month. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: Although the flowers of this delicate species are somewhat sombre in colour, they are pleasingly elegant and graceful, with long, thin tails and a beautiful stature. This species, with the related *Masdevallia hortensis*, belongs to a small, closely related group of notoriously difficult to grow species (in the former subgenus *Meleagris*; syn. genus *Rodrigoa*), of which these two species are probably the easiest to grow. Culture requirements should be closely adhered to for success. Flowers may appear in almost any month in cultivation, remaining open for two to three weeks and blooming successively over many months.



Figure 4.832 (above) Flowers of *Masdevallia alexandri* are graceful, if sombre (Grower: John Leathers).



Figure 4.833 (above) *Masdevallia alexandri* is a challenging species native to Ecuador (Grower: Marni Turkel).

MASDEVALLIA***Masdevallia amaluzae* Luer & Malo****Publication:** *Phytologia* 39: 185 (1978)**Etymology:** Named for the area of Amaluza in the province of Azuay, Ecuador, where this species was discovered.**Homotypic synonym:** *Luzama amaluzae* (Luer & Malo) Luer.**Morphology:** *Plant* 4.5–6.5 cm tall, clumping, branching, erect. *Ramicaul* 0.8–1 cm long. *Leaf* 3.5–5.5 cm long by 0.8–1.1 cm wide, petiole 1.5–3.5 cm, elliptic, apex acute. *Inflorescence* a somewhat congested raceme, peduncle 4–7 cm long, slender, arching, horizontal or descending, originating from low on the ramicaul. *Flower* 4–5.5 cm tall, 2–3 in number (rarely more), successive, sepaline tube campanulate, lateral sepals connate 0.6–0.8 cm past the aperture, tapering into proportionately long, straight to slightly recurved, sepaline tails. Variations include size and openness of flowers, length of sepaline tails and intensity of colours.**Range, elevation and habitat:** An uncommon species, *Masdevallia amaluzae* grows in southeastern Ecuador in the provinces of Azuay, Loja and Zamora-Chinchipe, as well as in Peru (P. Bermudez – pers. comms., 2009). It occurs at elevations of 1500–2500 m, where it grows as an epiphyte in cool, wet, montane or cloud forest. Plants in nature bloom between March and May. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** This handsome species needs a closer look to appreciate its beauty. The fine, rich yellow and brown flowers are decorated with thin lines and are pubescent within. They are held elegantly at the end of long, wiry spikes. The flowers display beautifully, hanging down gracefully below the leaves. In cultivation, plants tend to bloom in the spring. *Masdevallia amaluzae* was previously placed within subgenus *Pygmaeia*, section Amaluzae (syn. genus *Luzama*).**Figure 4.834 (above)** The beautiful flowers of *Masdevallia amaluzae* (Grower: Marni Turkel).**Figure 4.835 (above)** *Masdevallia amaluzae* near Huancabamba, Peru, at 2200–2500 m elevation (Photo: Steve Beckendorf).

MASDEVALLIA***Masdevallia amanda*** Rchb.f. & Warsz.**Publication:** *Bonplandia* (Hannover) 2: 115 (1854)**Etymology:** From the Latin *amandus* (lovely), a reference to the flowers.**Homotypic synonym:** *Spilotantha amanda* (Rchb.f. & Warsz.) Luer.**Heterotypic synonyms:** *Masdevallia calopterocarpa* Rchb.f., *Masdevallia gustavii* Rchb.f., *Masdevallia oligantha* Schltr., *Masdevallia remotiflora* Kraenzl.**Morphology:** Plant 6–15 cm tall, clumping, branching, erect. *Ramicaul* 1–2.5 cm long. *Leaf* 5–12.5 cm long by 1–2 cm wide, petiole 2–5 cm, elliptic, apex obtuse to rounded. *Inflorescence* a loose raceme, peduncle 8–16 cm long, flowers distichous, erect to suberect, originating from low on the ramicaul. *Flower* 2–2.5 cm tall, 2–4 (occasionally to 8) in number, simultaneous, sepaline tube small, dorsal sepal hooded, concave, sepaline tails straight and relatively short, lateral tails often recurved. Flowers may vary in number, colour intensity, number and size of spots, and in the length of the sepaline tails.**Range, elevation and habitat:** *Masdevallia amanda* is a widespread and relatively common species found in western Venezuela (state of Táchira), all three cordilleras of the Andes Mountains of western Colombia (departments of Antioquia, Boyacá, Caqueta, Cauca, Chocó, Cundinamarca, Nariño, Norte de Santander, Santander and Tolima), as well as Ecuador (provinces of Carchi, Loja, Morona-Santiago, Napo and Sucumbíos) and Peru. *Masdevallia amanda* occurs over a wide elevational range of 1700–3000 m, growing as an epiphyte and often as a road-bank terrestrial in very cool to cold, moist, montane cloud forest. In Peru the plants are often found on exposed branches and rock faces (P. Bermudez, pers. comms., 2009). Plants may bloom in any month in nature. This species is listed as least concern on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* cool to cold.**Comments:** A lovely species, *Masdevallia amanda* lives up to its specific name. This species belongs to relatively large group of multiflowered species (formerly known as subgenus *Amanda*, syn. genus *Spilotantha*) in which the flowers open simultaneously. It is easily grown under the correct conditions, and although it does equally well when potted or mounted, we suggest that plants be grown in pots since they have a tendency to become top-heavy on mounts. There is a natural hybrid of *M. amanda* with *M. picturata*, called *M. × alvaroi*, where the two species grow together in Antioquia, Colombia. Plants in cultivation may bloom in any month.**Figure 4.836 (above)** The lovely flowers of *Masdevallia amanda* (Grower: San Francisco Conservatory of Flowers).**Figure 4.837 (above)** *Masdevallia amanda* flower colouration is variable (Grower: San Francisco Conservatory of Flowers).

MASDEVALLIA***Masdevallia andreettana* Luer****Publication:** *Selbyana* 5: 390 (1981)

Etymology: Named in honour of the collector of this species, Padre Angel Andreetta (1920–2011) of Cuenca, Ecuador. The species was discovered by Mario Portilla near Bomboiza, Ecuador, who asked that it be named after Andreetta, a Salesian priest who loved orchids and inspired the Portilla family to start Ecuagenera, now a large and world renowned orchid nursery in Ecuador.

Morphology: Plant 7–10 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 6–8 cm long by 1.5–2.4 cm wide, petiole blackish, 2–3.5 cm long, broadly elliptical, apex rounded. *Inflorescence* a raceme, peduncle 3–3.5 cm long, slender, suberect to descending, originating from low on the ramicaul. *Flower* 4.5–7 cm tall, single, resupinate, widely spreading, oval, sepaline cup shallow, glabrous to pubescent, sepaline tails straight, long and thin, dorsal tail usually reflexed at the base, labellum hinged. Flowers vary in size, length of tails, density of hairs and shape of sepaline cup.

Range, elevation and habitat: *Masdevallia andreettana* is fairly widespread in southeastern Ecuador in the provinces of Morona-Santiago and Zamora-Chinipe. It is also found in the department of Amazonas in northern Peru. This species is found between 1600–2100 m elevation, growing epiphytically in cool, montane cloud forest. It can bloom in any month. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: A very popular species, *Masdevallia andreettana* has stately, flowers with long sepaline tails. The blooms are white, except for the tiny, hinged, reddish-purple lip. Marguerite Webb of J & L Orchids in Easton, Connecticut, writes, “There are few *Masdevallia* that possess the sparkling purity of *Masdevallia andreettana*, a factor that contributes to its appeal” (Webb, 1988). The blooms are on relatively short, lax stems, and so one might consider growing this plant on a mount to display the proportionately large, pristine flowers. A closely related species, *M. albella* Luer & Teague, differs basically in having pubescent sepals and may represent the same taxon. *Masdevallia andreettana* may bloom in any month of the year in cultivation, and a happy plant may have flowers nearly year-round, adding to its desirability. This species was formerly placed within subgenus *Masdevallia* section *Oscillantes*.



Figure 4.838 (above) The graceful white flowers of *Masdevallia andreettana* (Grower: J & L Orchids).



Figure 4.839 (above) *Masdevallia albella* is related, but differs primarily in having pubescent sepals (Grower: John Leathers).

Figure 4.840 (facing page) A trio of *Masdevallia andreettana* blooms against a dark foil of leaves (Grower: Brad Cotten).



MASDEVALLIA***Masdevallia angulifera*** Rchb.f. ex Kraenzl.**Publication:** *Repert. Spec. Nov. Regni Veg. Beih.* 34: 19 (1925)**Etymology:** From the Latin *angulifer* (bearing angles), referring to the distinctly angled sepaline apices.**Heterotypic synonym:** *Masdevallia olivacea* Kraenzl.**Morphology:** Plant 6–15 cm tall, rarely larger, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 5–13 cm long by 1.2–2.5 cm wide, elliptical, apex obtuse to rounded, petiole 2–4 cm long. *Inflorescence* a raceme, peduncle 5–8 cm long, slender, erect to suberect, originating from low on the ramicaul. *Flower* 3–4 cm tall, single, tubular, subtly sigmoid-shaped in profile, sepaline tube erect, distinctly inflated towards base, constricted before pointed, flaring, tail-less, triangular apices, petals and lip hidden within sepaline tube. Flowers vary in size and there are several colour forms (see Comments).**Range, elevation and habitat:** Quite widespread and currently somewhat common in western Colombia in the departments of Antioquia and Cauca, *Masdevallia angulifera* occurs between 1800–2000 m in elevation, growing epiphytically in cool, moist, montane cloud forest. This species is known only from a restricted range of four unprotected localities, and is listed as vulnerable on the IUCN Red List. Other factors contributing to its vulnerability include habitat destruction and the threat of over-collection. There are bloom-time records for October in nature, but it is quite possible that this species blooms in other months just as it does in cultivation.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** A profusely flowering species with a variety of colour forms, *Masdevallia angulifera* occurs in various shades of darkish red to yellowish-green, as well in bicoloured forms. Luer observed that some flowers emit a fragrance reminiscent of banana oil or acetone (Luer, 2002). Flowers are very long lived, lasting up to three months. Another Colombian species, the rare *M. siphonantha* Luer, is quite similar, but has larger flowers, a noticeably less constricted sepaline tube, and less distinctly triangular apices to the sepals. In cultivation, *M. angulifera* may bloom in almost any month of the year, but the authors have noticed large flushes of flowers in winter. We highly recommend this rewarding species. Both *M. angulifera* and *M. siphonantha* have been included in subgenus *Masdevallia*, section *Saltatrices*.**Figure 4.841 (above)** The dark flowered *Masdevallia angulifera* 'J & L' (Grower: Ron Parsons).**Figure 4.842 (above)** Blooms of *Masdevallia angulifera* 'J & L' (Grower: Ron Parsons).



Figure 4.843 (above) The *Masdevallia angulifera* yellow form has bright, cheerful flowers (Grower: Ron Parsons).

Figure 4.844 (below) Blooms of the pretty clone, *Masdevallia angulifera* 'Santa Barbara' (Grower: Ron Parsons).

Figure 4.845 (above) Flowers of the closely related *Masdevallia siphonantha* (Grower: Mary Gerritsen).

Figure 4.846 (below) *Masdevallia siphonantha* flowers are larger and also less constricted (Grower: Mary Gerritsen).

MASDEVALLIA

Masdevallia asterotricha Königer

Publication: *Orchidee* (Hamburg) 37: 104 (1986)

Etymology: From the Greek *astero* (star) and *thrix* (hair, haired), referring to the star-like hairs on the inside of the sepals.

Culture recommendations: *Plant* 6–11 cm tall, clumping, branching, erect. *Ramical* 1–2 cm, blackish. *Leaf* 5–9 cm long by 1.5–2 cm wide, elliptical, apex obtuse to rounded, petiole 1.7–2 cm long. *Inflorescence* a raceme, peduncle 5–7 cm long, slender, erect to suberect, originating from low on the ramical. *Flower* 5–10 cm tall, single, widely-spreading, sepaline cup tiny, interior surface with tiny, star-shaped reddish trichomes, dorsal sepal shallowly hooded, often reflexed at base, sepaline tails to 3.5 cm long, straight, thickish. Flowers vary in overall size, shape of sepaline tube, number and density of reddish hairs, and in length of tails.

Range, elevation and habitat: With a somewhat localised distribution, *Masdevallia asterotricha* is found in northern Peru in the departments of Amazonas and San Martin, at elevations of 900–1500 m. It grows as an epiphyte, fairly low on trees, in rather open, montane, cloud forest with numerous rock outcrops. It blooms in the spring. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: Despite its limited distribution in nature, this lovely species has fortunately become well established in collections. Easy to grow and bloom, *Masdevallia asterotricha* can be quite floriferous, producing many large, showy blossoms, and may flower during any month in cultivation. It has been classified within subgenus *Masdevallia*, section *Caudatae*.

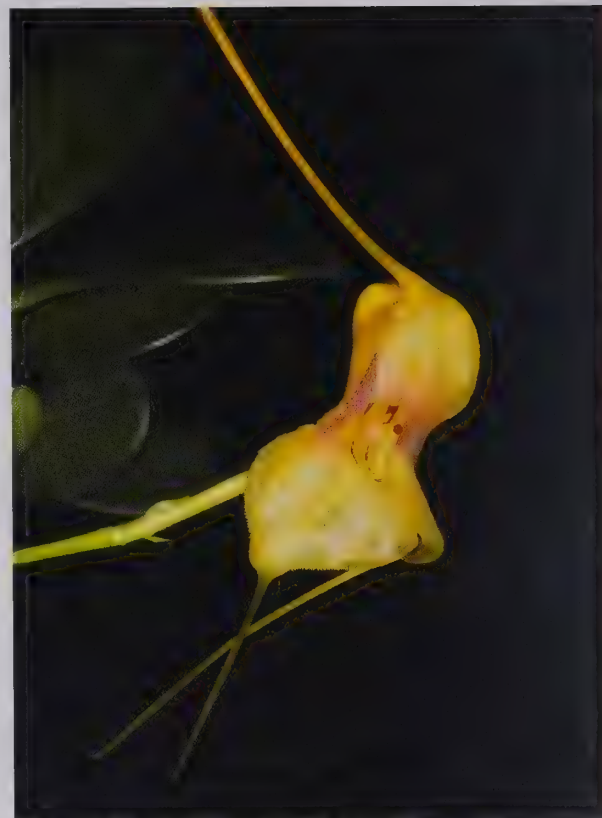


Figure 4.847 (above) The large, bright bloom of *Masdevallia asterotricha* (Grower: Ron Parsons).



Figure 4.848 (above) *Masdevallia asterotricha* flowers are variably marked with colour (Grower: Mary Gerritsen).

MASDEVALLIA

Masdevallia bangii Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 10: 41 (1922)

Etymology: Named to honour Miguel Bang (1853–1895), a collector of plants in Bolivia.

Homotypic synonyms: *Physosiphon bangii* (Schltr.) Garay; *Triotosiphon bangii* (Schltr.) Luer.

Heterotypic synonym: *Masdevallia triocon* H.R.Sweet.

Morphology: *Plant* 1.7–4.5 cm tall, clumping, branching, erect. *Ramicaul* 0.3–1 cm long. *Leaf* 1.5–3.5 cm long by 0.2–0.4 cm wide, petiole indistinct, linear-obovate, apex obtuse to rounded. *Inflorescence* a raceme, peduncle 0.5–2.5 cm long, erect to suberect, filiform, originating from low on the ramicaul. *Flower* 0.5–0.8 cm long, single, sepaline tube proportionately long, constricted just before tiny aperture, apices tailless, stout, thick, pointed, slightly recurved, minute petals and lip hidden inside tube. Variations are few, but include plant size, flower size, and inflorescence length.

Range, elevation and habitat: Widespread and locally abundant, *Masdevallia bangii* is found on the eastern slopes of the Andes Mountains, in Ecuador (provinces of Morona-Santiago, Napo, Pastaza, Pichincha, and Zamora-Chinchipec), Peru (department of Amazonas and Huánuco) and Bolivia (departments of Cochabamba and La Paz). It occurs at 600–2800 m elevation, and grows epiphytically in mild to cold, moist, montane, cloud forest.

Culture recommendations: See general notes for the genus. *Temperature* warm to cool, depending on provenance of plant. If uncertain, it is best to grow this species in intermediate conditions.

Comments: One of the smallest species in the genus, *Masdevallia bangii* is not commonly seen in collections even though it is not rare in nature. The flowers are unusual in shape for a *Masdevallia*, and are very similar to *M. gnoma* H.R.Sweet, with only slight differences in the petals and lip. Plants do equally well when potted or mounted, but if grown on a mount, sufficient moisture must be provided. Flowers may appear in any month, with occasional flushes of blooms. *Masdevallia bangii* has been classified in subgenus *Masdevallia*, section *Triotosiphon*.



Figure 4.849 (above) *Masdevallia bangii* produces pretty, delicate looking blooms. It is not often encountered in cultivation though it is not a rare taxon (Grower: Steve Beckendorf).

*MASDEVALLIA**Masdevallia caloptera* Rchb.f.

Publication: *Gard. Chron.*, n.s., 2: 322 (1874)

Etymology: From the Greek *kalo* (beautiful) and *ptero* (winged), referring to the attractively coloured and patterned sepals.

Homotypic synonym: *Spilotantha caloptera* (Rchb.f.) Luer.

Morphology: *Plant* 6.5–14 cm tall, clumping, branching, erect. *Ramicaul* 1.5–3 cm long. *Leaf* 5–11 cm long by 1.2–1.8 cm wide, narrowly obovate, apex somewhat rounded, petiole 1–4 cm long. *Inflorescence* a raceme, peduncle 13–18 cm long, flowers distichous, suberect, slender, originating from low on the ramicaul. *Flower* 2–2.5 cm tall, to 6 (occasionally more) in number, simultaneous, dorsal sepal hooded, sepaline tails straight, and relatively long. The flowers may vary in number, length and thickness of tails, and in colour and width of stripes.

Range, elevation and habitat: *Masdevallia caloptera* has been found in Ecuador (provinces of Carchi and Pichincha) and Peru (departments of Piura and Cajamarca) at elevations between 2000–3200 m. An uncommon species, it is found in cool to cold, moist, montane cloud forest. Bloom-time records indicate flowering in February and August in nature, but it is probable that the species blooms in other months as well.

Culture recommendations: See general notes for the genus. *Temperature* cool to cold. This species does equally well when grown mounted or potted, but it may be better to grow it in pots since the plants have a tendency to become top-heavy.

Comments: This lovely species is somewhat uncommon in collections, but that may be partly due to misidentification. Many plants are wrongly named in cultivation, and the authors have even seen *Masdevallia leptoura* Luer awarded as *M. caloptera* by the American Orchid Society! This is a truly beautiful species with brilliant white flowers, boldly marked with dark wine-red stripes and bright yellow tails. Flowers tend to appear between early fall to early spring in cultivation. *Masdevallia caloptera* was at one time classified in subgenus *Amanda*, a placement that the authors consider valid (syn. genus *Spilotantha*).



Figure 4.850 (above) The wonderfully contrasting blooms of *Masdevallia caloptera* (Grower: John Leathers).

Figure 4.851 (facing page) The similar flower of *Masdevallia leptoura* (Grower: John Leathers).



MASDEVALLIA***Masdevallia caudata* Lindl.****Publication:** *Gen. Sp. Orchid. Pl.*: 193 (1833)**Etymology:** From the Latin *caudatus* (with tails), referring to the long sepaline tails.**Homotypic synonym:** *Masdevallia caudata* var. *gudotii* Rchb.f.**Heterotypic synonyms:** *Masdevallia caudata* var. *shuttleworthii* (Rchb.f.) Rchb.f., *Masdevallia caudata* f. *xanthocorys* (Rchb.f.) O.Gruss & M.Wolff, *Masdevallia caudata* var. *xanthocorys* (Rchb.f.) A.H.Kent, *Masdevallia cucutillensis* Kraenzl., *Masdevallia expansa* Rchb.f., *Masdevallia tricolor* Rchb.f., *Masdevallia shuttleworthii* Rchb.f., *Masdevallia shuttleworthii* var. *xanthocorys* Rchb.f.**Morphology:** Plant 6.5–15 cm long, clumping, branching, erect. *Ramicaul* 1.5–3 cm long, blackish. *Leaf* 5–12 cm long by 1.5–2.5 cm wide, elliptical, apex obtuse to rounded, petiole 1.5–3.5 cm long. *Inflorescence* a raceme, peduncle 5–10 cm long, erect, slender, originating from low on the ramicaul. *Flower* 7–21 cm tall, single, widely spreading, sepaline tube bowl-shaped, sepaline tails long, straight. Flowers vary greatly in size, length of tails, colour and pattern; colours range from pink and yellowish to white and yellow to yellow and brownish, but all forms have a striped dorsal sepal and are overlaid with dense spotting.**Range, elevation and habitat:** A fairly widespread species, *Masdevallia caudata* is found in the states of Meridá and Táchira of Venezuela, and in central to northern Colombia, in the Eastern Cordillera (departments of Cundinamarca, Norte de Santander and Quindío). In Colombia it is said to be endangered due to excessive collection and habitat degradation. It has also been found in the department of Junín, Peru. *Masdevallia caudata* occurs between 1700–3300 m elevation, growing epiphytically in moist, cool to cold montane cloud forest. It may bloom in any month in nature, and is listed as endangered on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* cool to cold.**Comments:** One of the earliest *Masdevallia* species discovered by Europeans, and without question one of the showiest and most desirable species in the genus. It is a favourite of many growers due to the incredible diversity of colours, patterns and flower size. There is a yellowish variation that lacks red pigment, although the authors have not seen any flowers of this form in excess of 10–12 cm. The species has quite a wide altitudinal range, and some individuals will have more tolerance to warmth or cold. The plants can bloom in almost any month in cultivation, and the flowers are long lasting, easily up to one month, and some plants will bloom repeatedly over the course of several months. *Masdevallia caudata* has been classified as belonging in section *Caudatae*, subgenus *Masdevallia*.**Figure 4.852 (above)** The colourful flowers of *Masdevallia caudata* are large and showy (Grower: Mary Gerritsen).**Figure 4.853 (above)** *Masdevallia caudata* shows great diversity of colour and size (Grower: Russ Varnado).**Figure 4.854 (facing page)** *Masdevallia caudata* 'Belmont Highlands', Award of Merit, AOS (Grower: Ron Parsons).



MASDEVALLIA***Masdevallia concinna* Königer****Publication:** *Orchidee (Hamburg)* 33: 101 (1982)**Etymology:** From the Latin *concinus* (elegant, pretty), referring to the flowers of this species.**Homotypic synonym:** *Alaticaulia concinna* (Königer) Luer.**Morphology:** Plant 7–12.5 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 6–10.5 cm long by 1.2–1.8 cm wide, elliptical, apex obtuse, petiole 1–2 cm long. *Inflorescence* a raceme, 10–12 cm long, erect, triquetrous, originating from the ramicaul. *Flower* 6.5–7.5 cm tall, usually two in number, simultaneous, sepaline tube small, flaring at the aperture, sepaline tails, long, straight. The flowers vary in colour with some individuals having either more yellow or red.**Range, elevation and habitat:** Native to central and northern Peru in the departments of Amazonas, San Martín and Huánuco, *Masdevallia concinna* is found at elevations between 900–1700 m. It is relatively uncommon, growing as an epiphyte, but sometimes as a terrestrial on road banks, in intermediate to cool, moist, montane, cloud forest. There are bloom-time records for August and December, but it is likely that flowering occurs in other months also. This species is listed as endangered on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** Although relatively uncommon in collections, this species is well worth seeking out. Usually seen with two simultaneous flowers, the lovely blooms are bicoloured, although the proportions of golden yellow and garnet (red) on the lateral sepals vary from one individual to another. *Masdevallia concinna* is placed among a number of species characterised by a triquetrous, usually re-blooming inflorescence (formerly subgenus *Polyantha* section *Alaticaulis*; syn. genus *Alaticaulia*). The authors have not found this to be the case for *M. coccinna*, since the spikes tend to wither after the initial blooming. In cultivation, flowering usually occurs between mid-summer and mid-winter, but may also occur in other months.**Figure 4.855 (above)** The bicoloured flowers of *Masdevallia concinna* are handsome and striking (Grower: Russ Varnado).**Figure 4.856 (above)** This *Masdevallia concinna* form has especially long sepaline tails (Grower: Elle Ronis).

MASDEVALLIA

Masdevallia constricta Poepp. & Endl.

Publication: *Nov. Gen. Sp. Pl.* 2: 6 (1836)

Etymology: From the Latin *constrictus* (constricted), referring to the “pinched” sepaline tube.

Heterotypic synonym: *Masdevallia urosalpinx* Luer.

Morphology: *Plant* 7.5–14 cm tall, clumping, branching, erect. *Ramicaul* 1.5–3 cm long, blackish. *Leaf* 6–11 cm long by 2–3 cm wide, elliptical, apex obtuse, petiole 2–4 cm long. *Inflorescence* a raceme, 4–7 cm long, erect to suberect, slender, originating from the ramicaul. *Flower* 7–12 cm tall, single, tubular, sepaline tube pubescent within, constricted just before aperture, apex flaring, round or triangular, sepaline tails proportionately long, usually straight, thick, petals and lip hidden deep within sepaline tube. The flowers may vary noticeably in size, length and orientation of tails, and in the intensity of colour within the sepaline tube.

Range, elevation and habitat: *Masdevallia constricta* is relatively widespread and frequent in southeastern Ecuador in the province of Morona-Santiago, and also occurs in northern Peru (departments of Huánuco and San Martín) and Bolivia (department of La Paz). It occurs between 1470–1700 m elevation, growing as an epiphyte in coolish, moist, montane cloud forest. This species may bloom in any month in nature.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: This lovely species was once known as *Masdevallia urosalpinx* and may still be occasionally labelled as such in collections. A popular parent of many hybrids, it is used to confer its relatively large flower size, beautiful shape and brilliant colours. In the southern part of its range, this taxon occurs with *M. fuchsii* and *M. calosiphon* Luer, both close relatives, and all three belong to a group of species once known as section *Saltatrices*, of subgenus *Masdevallia*. The plants may bloom in any month in cultivation, but tend to flower most profusely in winter.



Figure 4.857 (above) *Masdevallia constricta* has truly lovely flowers of white and yellow-orange (Grower: Elle Ronis).



Figure 4.858 (above) The blooms of *Masdevallia constricta* in profile (Grower: Joe Marinello).

MASDEVALLIA

Masdevallia corazonica Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 8: 48 (1921)

Etymology: Named for Mount Corazón, Ecuador, where this species was collected, with the Latin suffix *-ica* (indicating something that relates to a specific place, person or theme).

Homotypic synonym: *Spilotantha corazonica* (Schltr.) Luer.

Heterotypic synonym: *Masdevallia sphenopetala* Kraenzl.

Morphology: *Plant* 2.5–8 cm tall, clumping to slightly ascending-creeping, branching, erect. *Ramicaul* 0.3–2 cm long. *Leaf* 2.2–6 cm long by 0.5–1 cm wide, elliptical, apex rounded, petiole 1–2.5 cm long. *Inflorescence* a somewhat congested raceme, peduncle 3–8 cm long, suberect to arching, flowers distichous, originating from low on the ramicaul. *Flower* 1–1.2 cm long, 4–7 (rarely more) in number, simultaneous, sepaline cup small, densely hairy within, tubular, tapering rather abruptly into proportionately long, thin, often somewhat recurved tails. Variations are few in this species, but include plant size, the number and size of flowers, and the orientation and length of the sepaline tails.

Range, elevation and habitat: This species is endemic to central and north-central Ecuador, in the provinces of Bolívar and Pichincha. In some localities it is rather frequent, whilst it is uncommon in others. *Masdevallia corazonica* occurs between 1950–3100 m elevation, in cool to cold, moist, montane cloud forest. Collection records indicate that this species blooms in December and January in nature. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cold.

Comments: Whilst less obviously beautiful than some other *Masdevallia* taxa addressed in this work, this diminutive species definitely has its own charm. Freely blooming, each spike has several yellow-tailed, white flowers that display themselves above and away from the leaves. Regrettably uncommon in collections, it is one of the smallest members of the group formerly known as subgenus *Amanda* (syn. genus *Spilotantha*). Flowers generally appear in early winter to early spring in cultivation.



Figure 4.859 (above) The charming, freely flowering *Masdevallia corazonica* (Grower: John Leathers).

MASDEVALLIA

Masdevallia decumana Königer

Publication: *Orchidee (Hamburg)* 33: 101 (1982)

Etymology: From the Latin *decumanus* (very large), referring to the disproportionately large flower.

Morphology: *Plant* 4–7 cm tall, clumping, branching, erect. *Ramicaul* 0.5–1 cm long, blackish. *Leaf* 3.5–7 cm long by 1.7–2 cm wide, elliptical, apex obtuse to rounded, petiole 1–2 cm long. *Inflorescence* a raceme, peduncle 3–7 cm long, proportionately short, suberect to descending, slender, originating from low on the ramicaul. *Flower* 6.5–8 cm wide, proportionately large, single, widely spreading, sepaline tube tiny, sepaline tails medium to long, straight, petals and lip tiny. Flowers vary in shape, length of tails, and in the pattern and density of spotting.

Range, elevation and habitat: A scarce species in nature, *Masdevallia decumana* is found infrequently in southeastern Ecuador, in the province of Zamora-Chinchipe, as well as northern Peru (department of Amazonas), at elevations between 1450–2100 m. It grows epiphytically in moist, cool, montane cloud forest. No confirmed bloom-time records could be found for this species. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: A spectacular species with flowers that are huge for the size of the plant, *Masdevallia decumana* has become incredibly popular since its discovery. There is some variation in the flowers, particularly in the size and density of spotting, and the overall shape can vary markedly. Its initial discovery in Peru in 1982 caused quite a stir in the orchid world, and several years later this species was also found in Ecuador. This plant displays its stunning flowers best when grown on a mount due to the somewhat short, descending inflorescences, but it also grows very well potted. The flowers tend to appear most commonly during the autumn and winter months in cultivation. *Masdevallia decumana* was classified in a large group of truly beautiful species formerly known as section *Caudatae* of the subgenus *Masdevallia*.



Figure 4.860 (above) The spectacular *Masdevallia decumana* has widely spreading blooms (Grower: Marni Turkel).

MASDEVALLIA

Masdevallia deformis Kraenzl.

Publication: *Repert. Spec. Nov. Regni Veg.* 17: 428 (1921)

Etymology: From the Latin *deformis* (deformed, misshapen); Kraenzlin actually meant that the large flowers were out of proportion to plant size, and not deformed *per se*.

Heterotypic synonyms: *Masdevallia exaltata* Luer, *Masdevallia deformis* f. *exaltata* (Luer) O.Gruss & M. Wolff.

Morphology: *Plant* 5.5–14.5 cm tall, clumping, branching, erect. *Ramicaul* 2–4.5 cm long, blackish. *Leaf* 4–10 cm long by 1–2.4 cm wide, elliptical, apex obtuse to rounded, petiole blackish, 1.5–4.5 cm long. *Inflorescence* a raceme, peduncle 4–10 cm long, erect to descending, slender, originating from low on the ramicaul. *Flower* 2.5–5 cm long, single, pendent, sepaline tube narrow before flaring abruptly, lateral sepals connate for one-half to two-thirds of the exposed length, sepaline tails minute, dorsal sepaline tail filiform, forward pointing, extending past aperture of the sepaline tube, petals and lip hidden from view. Flowers vary in colour, from somewhat orange-red to rosy red with pinkish highlights, and quite noticeably in size.

Range, elevation and habitat: *Masdevallia deformis* is a localised, occasionally abundant species from southern and southeastern Ecuador in the provinces of Loja, Morona-Santiago and Zamora-Chinchipec. It has also been found relatively recently in Peru (P. Bermudez, pers. comms., 2009). This species grows as an epiphyte in cool, wet, montane forest at elevations of 1750–2700 m. Fiske (1973) describes the habitat as, “rather open rainforest on the (Cordillera del) Condor at an elevation of 2000 metres, growing in debris on fallen logs and on heavily moss-covered vines.” In nature this species tends to bloom between November and May. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: A truly stunning species, the sight of *Masdevallia deformis* in full bloom, with its many brilliant red flowers dangling gracefully, each looking like a pair of tiny red ballet slippers, is sure to capture the heart. The flowers are long-lived, easily lasting 6–8 weeks. A population of this species found in the mountains west of the Cordillera del Condor, Ecuador, was found to produce noticeably larger flowers borne on ascending to erect inflorescences, as well as distinctly taller plants. This taxon was called *M. exaltata* for a time, but is now regarded as falling within the range of variation for this species. Although plants of *M. deformis* have been said to reach 14.5 cm tall, the authors have not seen plants larger than 10 cm tall. This species has been classified in subgenus *Masdevallia* section *Masdevallia* subsection *Coccineae*. In cultivation, flowers generally appear between late autumn and late winter.



Figure 4.861 (above) The stunning flowers of *Masdevallia deformis* (Grower: Ron Parsons).



Figure 4.862 (above) The form of *Masdevallia deformis* once known as *M. exaltata* (Grower: Ron Parsons).

MASDEVALLIA

Masdevallia exquisita Luer & Hirtz

Publication: *Lindleyana* 8: 44 (1993)

Etymology: From the Latin *exquisitus* (exquisite), referring to the large, beautiful flower.

Morphology: *Plant* 7.5–14 cm tall, clumping, branching, erect. *Ramicaul* 1.5–2.5 cm long, blackish. *Leaf* 6–11.5 cm long by 1.1–2.2 cm wide, broadly elliptical, apex rounded to obtuse, petiole 2–4 cm long, lamina thinly leathery. *Inflorescence* a raceme, peduncle 5–10 cm long, erect to suberect, originating from near the base of ramicaul. *Flower* 10–18 cm tall, single, widely-spreading, sepaline tube shallow, bowl-like, sepaline tails long, thin, straight. Flower variation includes tail length and the amount of reddish-pink suffusion in the sepaline cup.

Range, elevation and habitat: Found originally in north-central Bolivia near Murillo, Río Zongo, in the department of La Paz, *Masdevallia exquisita* has also recently been found in Peru (P. Bermudez, pers. comms., 2009). It occurs at elevations near 1800 m, where it grows as an epiphyte on trees on forested slopes in moist, cool, mountain valleys. Records show that plants were found in bloom in August, but it is quite likely to flower in other months also. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: A spectacular species with flowers that are larger than the plant, *Masdevallia exquisita* is a popular choice for a collector of miniatures and is not likely to be confused with any other species. The white, round-faced flowers are suffused to a varying extent with a wonderful, rich, brilliant pinkish-purple colour, while unmistakable, long, thin, straight, yellow sepaline tails that make up most of the length of the bloom. This species was originally classified in subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*, an artificial grouping of a highly disparate group of species. Flowers may appear at any time, but tend to appear during the winter months.



Figure 4.863 (above) A pair of exuberant *Masdevallia exquisita* blooms (Grower: John Leathers).



Figure 4.864 (above) The flower of *Masdevallia exquisita* in detail (Grower: Ron Parsons).

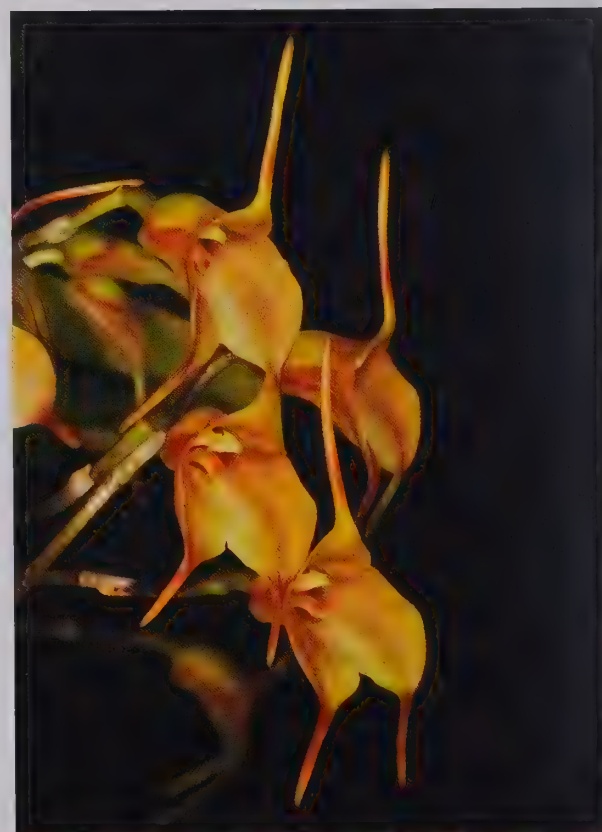
MASDEVALLIA***Masdevallia floribunda* Lindl.****Publication:** *Edwards's Bot. Reg.* 29 (Misc.): 72 (1843)**Etymology:** From the Latin *floribundus* (with many flowers), referring to the free-flowering habit of this species.**Homotypic synonym:** *Acinopetala floribunda* (Lindl.) Luer.**Heterotypic synonyms:** *Masdevallia floribunda* var. *myriostigma* E.Morren, *Masdevallia floribunda* f. *lindeniana* (A.Rich. & Galeotti) O.Gruss & M. Wolff. *Masdevallia galeottiana* A.Rich. & Galeotti, *Masdevallia lindeniana* A.Rich. & Galeotti, *Masdevallia myriostigma* E.Morren.**Morphology:** Plant 6–15 cm tall, clumping, branching, erect. *Ramicaul* 2–3 cm long. *Leaf* 4–12 cm long by 1.2–2.2 cm wide, elliptical, apex obtuse, petiole 2–3 cm long. *Inflorescence* a raceme, peduncle 1.5–12 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 2–3.5 cm tall, 1–2 in number, successive, widely spreading, sepaline tube small, campanulate, sepaline tails straight to slightly recurved, dorsal tail longer than lateral tails. The flowers vary somewhat in size and tail length, but are so extremely variable in colour and pattern that they defy simple description! Plant size and inflorescence length also vary.**Range, elevation and habitat:** Widespread and relatively common, *Masdevallia floribunda* is found in Mexico (states of Chiapas, Oaxaca and Veracruz), Guatemala (departments of Alta Verapaz and Izabal), Belize (districts of Belize, Cayo and Toledo), Honduras (departments of Comayagua and Cortés) and as far south as Costa Rica (province of Cartago, where it is uncommon). There is one collection from the department of Nova Granada, Colombia, but without a locality. This species is found over a broad range of elevations, from 75–1500 m, and grows as an epiphyte from warm, lowland forest to cooler, montane forest, some seasonally dry. *Masdevallia floribunda* may flower in almost any month of the year in nature.**Culture recommendations:** See general notes for the genus. *Temperature* warm to cool depending on provenance of plant. If provenance is uncertain, grow as an intermediate.**Comments:** This northernmost species of *Masdevallia* could easily be the most variable. *Masdevallia floribunda* differs in almost every anatomical feature, from plant size and inflorescence length, to the size, colour, shape and patterns of the flowers. Even the culture requirements are diverse. Nonetheless, it is easy to grow and bloom, and is one of the best species of *Masdevallia* for growers with warmer conditions. In collections, flowers tend to occur from early summer to late autumn. One taxon, *Masdevallia tuerckheimii* Ames, is seen by some as a separate species, and by others as merely another variety of *M. floribunda*. This species was classified as belonging to subgenus *Masdevallia* section *Minutae* (syn. genus *Acinopetala*).**Figure 4.865 (above)** Leaves and flowers of *Masdevallia floribunda* (Grower: Mary Gerritsen).**Figure 4.866 (above)** A *Masdevallia floribunda* form with golden coloured blooms (Grower: White Oak Orchids).



Figure 4.867 (above) A yellow form of *Masdevallia floribunda* (Grower: Rudy Bachmann/SLO Gardens).

Figure 4.868 (below) A *Masdevallia floribunda* brownish-purple form (Grower: Don Doehle).

Figure 4.869 (above) A purple form of *Masdevallia floribunda* (Grower: Marni Turkel).

Figure 4.870 (below) *Masdevallia floribunda* with almost porcelain white flowers (Grower: Marni Turkel).



MASDEVALLIA***Masdevallia fuchsii* Luer****Publication:** *Phytologia* 39: 203 (1978)**Etymology:** Named in honour of Fred J. Fuchs Jr., of Naranja, Florida, who, along with Janet Kuhn of Easton, Connecticut, discovered the species.**Heterotypic synonym:** *Masdevallia saulii* Königer.**Morphology:** *Plant* 5.5–14.5 cm tall, clumping, branching, erect. *Ramicaul* 1.5–3 cm long. *Leaf* 4–10.5 cm long by 1.1–1.7 cm wide, elliptical, apex obtuse to rounded, petiole 2–4 cm long. *Inflorescence* a raceme, peduncle 3.5–6 cm long, erect, slender, originating from low on the ramicaul. *Flower* 3.5–6.5 cm long depending on length of sepaline tails, single, sepaline tube straight, erect, narrow, inflated near base, flaring widely at apex, sepaline tails relatively long, somewhat thick, straight to recurved, petals and lip hidden deep within sepaline tube. Flowers may vary in overall size, and in length and orientation of tails.**Range, elevation and habitat:** Uncommon and localised to the department of Huánuco of Peru, *Masdevallia fuchsii* occurs between 1400–1700 m elevation, growing epiphytically in cool, moist, montane cloud forest. It is likely considered vulnerable due to its limited distribution and the ever present threat of habitat destruction. The only records for bloom-times in nature are for March and April, but it is quite likely that this species blooms at other times. This species is listed as endangered on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** An alluring species that has been the subject of considerable taxonomic confusion, *Masdevallia fuchsii* was known for years as *M. saulii* Königer, whilst a different, related species was called *M. fuchsii*. This misidentification was later corrected, and the former *Masdevallia saulii* was rightfully named *M. fuchsii*, whilst the species known earlier as *M. fuchsii* was renamed *M. calosiphon* Luer. Both *M. fuchsii* and *M. calosiphon* are endemic to the department of Huánuco in central Peru, and in part of this range, they occur sympatrically with another close relative, *M. constricta*. Another relative that may be confused with *M. fuchsii* is *M. aurea* Luer. The flowers of *M. aurea* are smaller, the flaring, white apices of the sepals are also smaller and rounded, and the frontal inflation of the sepaline tube is differently shaped. All four species are members of the former section *Saltatrices* of subgenus *Masdevallia*. *Masdevallia fuchsii* may produce its beautiful blooms in any month in cultivation. The authors grow plants of this species that often have one or more flowers open at any time.**Figure 4.871 (facing page)** The rich, reddish-purple flower of *Masdevallia floribunda* var. *tuerckheimii* is particularly striking (Grower: Elle Ronis).**Figure 4.872 (above)** A pristine bloom of *Masdevallia fuchsii* (Clone A) (Grower: Ron Parsons).**Figure 4.873 (above)** *Masdevallia fuchsii* (Clone B) (Grower: Ron Parsons).



Figure 4.874 (above) *Masdevallia aurea* (Grower: Russ Varnado).

Figure 4.875 (below) *Masdevallia aurea* flowers from a mounted specimen (Grower: Jacob Knecht).

Figure 4.876 (above) *Masdevallia calosiphon* (Grower: Ron Parsons).

Figure 4.877 (below) *Masdevallia calosiphon* as viewed in profile (Grower: Ron Parsons).

MASDEVALLIA

Masdevallia garciae Luer

Publication: *Selbyana* 7: 109 (1982)

Etymology: Named to honour the collector of this species, Carlos García-Esquivel, of Caracas, Venezuela, a psychiatrist and orchid grower with great knowledge of Venezuelan orchids.

Homotypic synonym: *Alaticaulia garciae* (Luer) Luer.

Morphology: Plant 7–11 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 6–9 cm long by 1.5–2 cm wide, elliptical, apex obtuse, lamina leathery, petiole 1–2.5 cm long. *Inflorescence* a raceme, peduncle 4–5 cm long, terete to triquetrous, erect to suberect, originating from near the base of ramicaul. *Flower* 1.8–2.2 cm tall, 2 (sometimes 1, rarely 3) in number, simultaneous, sepaline tube 1–1.2 cm wide, sepaline tails stout, thickened. Flowers vary somewhat in intensity of colour and width of stripes.

Range, elevation and habitat: *Masdevallia garciae* is endemic to the coastal mountains of northwestern Venezuela, in the state of Falcón. It occurs between 1200–1500 m elevation, growing as an abundant epiphyte in cloud forests. No bloom-time records are known. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: This common species has much to recommend its inclusion in collections. *Masdevallia garciae* is easily obtainable, charming, floriferous, prolific, and able to adapt to a wide range of temperatures. It tends to bloom in the fall to mid-winter, although it may bloom in other months also. *Masdevallia garciae* was at one time placed within subgenus *Polyantha* section *Alaticaulis* subsection *Alaticaulis* (syn. genus *Alaticaulia*).



Figure 4.878 (above) Flowers of *Masdevallia garciae*, a Venezuelan endemic (Grower: Mary Gerritsen).



Figure 4.879 (above) The *Masdevallia garciae* is charming and brightly coloured (Grower: Mary Gerritsen).

MASDEVALLIA***Masdevallia glandulosa* König****Publication:** *Orchidee (Hamburg)* 30: 77 (1979)**Etymology:** From the Latin *glandulosus* (with glands), referring to the prominent trichomes covering the sepaline cup.**Morphology:** *Plant* 8–15 cm tall, clumping, branching, erect. *Ramicaul* 1–3 cm long, blackish. *Leaf* 7–12 cm long by 1.5–2.2 cm wide, elliptical, apex obtuse, petiole blackish, 3–5 cm long. *Inflorescence* a raceme, peduncle 4–5 cm long, erect, originating from low on ramicaul. *Flower* 5–8 cm tall (or wide), single, sepaline tube campanulate, distally with globose, shiny, short-clavate glands, base glabrous, sepaline tails somewhat thick, generally straight to incurved, medium to proportionately long in length. Flower variations include overall size, as well as length and orientation of sepaline tails, and openness of sepaline tube.**Range, elevation and habitat:** *Masdevallia glandulosa* occurs in southeastern Ecuador (province of Zamora-Chinchi) and northern Peru (department of Amazonas) where it is relatively common. *Masdevallia glandulosa* grows at middling elevations between 1200–1800 m as an epiphyte on mossy branches and trunks in wet, montane forest. In Peru these forests have a pronounced dry season. Flowering generally occurs between August and September in nature.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** This delightful species, popular with *Masdevallia* aficionados, is one of most pleasingly fragrant in the genus. The wonderful, spicy perfume has been likened to cinnamon by some, and to cloves by others. Although the plants may be grown mounted, the flowers, with their short spikes, look especially attractive encircling the top of a pot. This species blooms occasionally in cultivation at any time, but most profusely between mid-autumn and mid-winter. *Masdevallia glandulosa* was at one time placed within subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*.**Figure 4.880 (above)** The flowers of *Masdevallia glandulosa* are pleasingly fragrant (Grower: Allison Lehman).**Figure 4.881 (above)** *Masdevallia glandulosa* blooms contrast well with the leaves (Grower and Photo: Marni Turkel).



Figure 4.882 (above) *Masdevallia glandulosa* flowers are festooned with extraordinary and distinctive globose glands (Grower: Golden Gate Orchids).
Figure 4.883 (below) A pot full of *Masdevallia glandulosa* 'Golden Gate' AM/AOS is a fine example of the species (Grower: Golden Gate Orchids).

MASDEVALLIA***Masdevallia graminea* Luer****Publication:** *Phytologia* 42: 460 (1979)**Etymology:** From the Latin *gramineus* (grass-like), referring to the plant's growth habit, or possibly for its grass-like head of flowers.**Homotypic synonym:** *Spilotantha graminea* (Luer) Luer.**Morphology:** *Plant* 7.5–14.5 cm tall, clumping, slightly creeping-ascending, branching, erect. *Ramicaul* 1.5–2.5 cm long. *Leaf* 6–12 cm long by 1–2 cm wide, elliptical, apex rounded, lamina suberect, petiole 2.5–5 cm long. *Inflorescence* a raceme, peduncle 15–26 cm long, congested at apex, erect to suberect, originating from low on the ramicaul. *Flower* 1–1.5 cm long, up to 9 in number, simultaneous, sepaline tube narrower at the apex, sepaline tails smallish, thick, straight to slightly curved, forward pointing. Flower characteristics vary little.**Range, elevation and habitat:** Found in central Ecuador in the provinces of Bolívar and Chimborazo, and recently in Peru (P. Bermudez, pers. comms., 2009), *Masdevallia graminea* occurs infrequently between 2400–3000 m elevation as an epiphyte, in quite cool to cold, moist, high montane cloud forest. Bloom-time records of plants in nature show sporadic dates of flowering between February and August. This species is listed as endangered on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* cool to cold.**Comments:** A curious species that is not often seen in cultivation, *Masdevallia graminea* has an odd fragrance, at first pleasing, but then developing a strange, somewhat unpleasant, secondary scent. Whilst not particularly attractive, the tightly clustered flowers do have some appeal. The authors have not noticed much variation in anything but the size of the plant and the number of flowers. Eventually becoming top-heavy when grown on mounts, this species is best grown in pots. *Masdevallia graminea* belongs to the group of multiflowered species once classified in subgenus *Amanda* (syn. genus *Spilotantha*). In cultivation, flowering is heaviest in the winter months, although the species can bloom in any season.**Figure 4.884 (above)** The flowers of *Masdevallia graminea* are tightly clustered (Grower: John Leathers).**Figure 4.885 (above)** *Masdevallia graminea* blooms have an unusual fragrance (Grower: John Leathers).

MASDEVALLIA***Masdevallia hartmanii* Luer****Publication:** *Lindleyana* 9: 106 (1994)

Etymology: Named to honour the discoverer of this and many other species, Hartman Eudaldo Mendoza (died 1993), a farmer in Vilcabamba, Ecuador. Hartman perished tragically in a bus accident whilst bringing orchids to sell at the market in Loja.

Morphology: *Plant* 4–8 cm tall, clumping, branching, erect. *Ramicaul* 0.8–1 cm long, blackish. *Leaf* 3.5–5 cm long by 0.8–1 cm wide, elliptical, apex acute, petiole 1.5–3 cm long, lamina ventrally paler with blackish speckles. *Inflorescence* a raceme, peduncle 1–5 cm long, horizontal to descending, originating from low on the ramicaul. *Flower* 2.5–6 cm long, single, widely spreading, sepaline tube deep, campanulate, dorsal sepal hooded, base of lateral sepals noticeably reflexed, sepaline tails clavate, straight to slightly curved, proportionately long. Variations are small, but include plant size, flower size, sepaline tail length and intensity of flower colour.

Range, elevation and habitat: *Masdevallia hartmanii* is endemic to southeastern Ecuador in the province of Zamora-Chinchipe, where it grows as an epiphyte in cool, moist, mossy, montane cloud forest at elevations of approximately 2000 m. It usually blooms in October in nature (Ivan Portilla, pers. comms., 2010), and possibly at other times as well. This species is listed as vulnerable on the IUCN Red List, probably due to its restricted range and possible over-collection.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A truly elegant little species, *Masdevallia hartmanii* possesses many desirable qualities; it can be nearly everblooming, has vibrantly colourful, enchanting flowers, and the blooms are long-lasting, often persisting for several weeks. Best displayed on a mount, its horizontal to descending flower spike creates a delightful sight when a specimen is in heavy bloom. Even so, some growers may need to grow this species in pots to keep plants from desiccating. If potted, grow mounded, such that the spikes can hang over the edge of the pot. This species can bloom at any time in cultivation, and even a small specimen will nearly always display one or more flowers. *Masdevallia hartmanii* was placed in subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*.



Figure 4.886 (above) The vibrant flowers of *Masdevallia hartmanii* are frequently produced (Grower: Marni Turkel).



Figure 4.887 (above) The flower of *Masdevallia hartmanii* in detail (Grower: Elle Ronis).

MASDEVALLIA

Masdevallia hirtzii Luer & Andreetta

Publication: *Amer. Orchid Soc. Bull.* 58: 137 (1989)

Etymology: Named to honour the collector of this species, Alexander Charles Hirtz (1945-), a geologist, orchidologist, president of the Latin American Orchid Council and Andean representative to the Conservation Committee of the American Orchid Society.

Morphology: *Plant* 6–12 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long, blackish. *Leaf* 4–8.5 cm long by 1.5–2 cm wide, elliptical, apex obtuse, petiole blackish, 2–3.5 cm long. *Inflorescence* a raceme, peduncle 4–6 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 6.5–7 cm tall, single, sepaline tube slightly arcuate, campanulate, flaring at aperture, sepaline tails proportionately long, thin, straight, dorsal tail sometimes reflexed at base. The flowers are somewhat variable in colour intensity, as well as in the size, length and orientation of the tails.

Range, elevation and habitat: *Masdevallia hirtzii* occurs in the Cordillera del Condor of southeastern Ecuador in the province of Zamora-Chinipe, and has also recently has been found in Peru (P. Bermudez, pers. comms., 2009). It is found in widely separated and occasionally (historically) locally abundant populations at elevations of 1200–1720 m. It grows epiphytically in moist, cool, montane cloud forest. There are bloom-time records for June, but it is likely that plants will flower at other times. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: Although this species is now relatively common in cool-growing collections, its brilliant orange flowers generated quite a stir amongst growers when first introduced. The range of *Masdevallia hirtzii* overlaps with the ranges of several other orange-flowered, tubular species of *Masdevallia*, such as *M. limax*, *M. maxilimax* (Luer) Luer, *M. mendozae* and *M. morochoi* Luer & Andreetta, and this group is thought to be pollinated by various species of hummingbirds. All of the aforementioned species were, at one time, classified in subgenus *Masdevallia*, section *Saltatrices*. The flowers of *Masdevallia hirtzii* generally occur between winter and mid-spring in cultivation, but can appear in any month.



Figure 4.888 (above) *Masdevallia hirtzii* produces substantial blooms of a brilliant orange. They are believed to be pollinated by hummingbirds (Grower: Jacob Knecht).

MASDEVALLIA***Masdevallia hortensis*** Luer & R.Escobar**Publication:** *Orquideologia* 16: 154 (1984)**Etymology:** From the Latin *hortensis* (from the garden), referring to the town of Jardín, Colombia, where this species was discovered.**Heterotypic synonym:** *Rodrigoa hortensis* (Luer & R.Escobar) Luer.**Morphology:** *Plant* 7–10 cm tall, clumping, branching, erect. *Ramicaul* 1–1.5 cm long. *Leaf* 6–8.5 cm long by 0.9–1.3 cm wide, obovate-elliptical, apex obtuse, lamina thinly leathery, petiole 3 cm long. *Inflorescence* a raceme, somewhat congested, peduncle 6–9 cm long, erect, slender, originating from the ramicaul. *Flower* 2.5–3 cm tall, 2–4 (occasionally more) in number, successive, widely spreading, sepaline cup very narrow, dorsal sepal hooded, lateral sepals free for most of their length, all sepals constricting abruptly at the apices sepaline tails long, straight, filiform, deflexed strongly at their attachment with the sepals. Variations are slight, but include flower size, pattern, and length and posture of sepaline tails.**Range, elevation and habitat:** *Masdevallia hortensis* is localised to western Colombia where it is endemic to a small area of the Western Cordillera near the town of Jardín in the department of Antioquia. It occurs at approximately 2600 m elevation, growing as an epiphyte in moist, cool, shaded, montane cloud forest. The Colombian red book (Calderón-Sáenz (Ed.), 2006) lists this species as vulnerable due to the very small extent of its range. Bloom records indicate that this species blooms in May in nature, but it is likely that it blooms at other times of year as well.**Culture recommendations:** See general notes for the genus. *Temperature* cool.**Comments:** This challenging to grow species has such striking flowers that it is well worth any efforts to cultivate it successfully. *Masdevallia hortensis* belongs to a small section of the genus (formerly subgenus *Meleagris*, syn. genus *Rodrigoa*) of which most of the species are difficult to keep alive for long; this taxon, with its relative, *M. alexandri*, are probably the easiest to both procure and grow. As suggested for *M. alexandri*, the culture requirements should be closely adhered to. Flowers may appear in any month in cultivation.**Figure 4.889 (above)** *Masdevallia hortensis* blooms are particularly striking in form (Grower: John Leathers).**Figure 4.890 (above)** The intriguing flower of *Masdevallia hortensis* as seen in portrait (Grower: John Leathers).

MASDEVALLIA

Masdevallia immensa Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 79: 122 (2000)

Etymology: From the Latin *immensus* (immense), referring to the large flower size in relation to the plant.

Morphology: *Plant* 9.5–11.5 cm tall, clumping, branching, erect. *Ramicaul* 1.5–2 cm long. *Leaf* 8–10 cm long by 2.5–3 cm wide, elliptical, apex obtuse to rounded, petiole blackish, 2–3 cm long. *Inflorescence* a raceme, peduncle 10–13 cm long, erect, originating from low on ramicaul. *Flower* 15–18 cm tall, single, widely spreading, sepaline cup small, sepaline tails long, thin, and straight. Flowers vary in size, shape, length of tails as well as the amount and intensity of pinkish suffusion.

Range, elevation and habitat: *Masdevallia immensa* is localised to the department of Huánuco, central Peru, where it grows epiphytically in moist, cool, montane cloud forest at elevations near 1800 m. A rare species given its small range, it is now listed as endangered on the IUCN Red List. No confirmed bloom records are known.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: The spectacular flowers of this species are huge in proportion to the plant. Although Luer (2002) commented on its resemblance to *Masdevallia klabochorum* Rchb.f., it is felt that *M. immensa* should rather be compared to *M. setacea* (in particular the paler colour forms), a closely related species with similar, large flowers that is also found in Peru (see *M. setacea*). *Masdevallia immensa* is still somewhat rare in cultivation, but it is easy to propagate through division due to its relatively fast growth. In cultivation, plants tend to flower during the winter months, but blooms occasionally appear at other times. *Masdevallia immensa* was at one time classified in the subgenus *Masdevallia*, section *Caudatae*.



Figure 4.891 (above) *Masdevallia immensa* (Grower: Ron Parsons).



Figure 4.892 (above) The leaves and flowers of *Masdevallia immensa* (Grower: Ron Parsons).

Figure 4.893 (facing page) A *Masdevallia* cf. *imensa* bloom in detail (Grower: Unknown).



MASDEVALLIA***Masdevallia lamprotyria* Königer****Publication:** *Orchidee (Hamburg)* 31: 178 (1980)**Etymology:** From the Greek *lampro* (shining) and *tyria* (royal purple), in reference to the colour of the flower.**Morphology:** *Plant* 7–13.5 cm tall, clumping, branching, erect. *Ramicaul* 1–2.5 cm long. *Leaf* 6–11 cm long by 0.5–0.7 cm wide, narrowly elliptical, apex acute, petiole 1–3 cm long. *Inflorescence* a raceme, peduncle 8–9 cm long, erect to suberect, originating from low on the ramicaul. *Flower* 5–7 cm tall, single, widely spreading, sepaline cup small, sepals tapering to long, thin tails, dorsal sepal often strongly recurved, petals and lip tiny, visible inside sepaline tube. Flowers vary somewhat in size, orientation of tails (erect to recurved), and in colour intensity.**Range, elevation and habitat:** *Masdevallia lamprotyria* is found in southeastern Ecuador (province of Zamora-Chinchi) and northern Peru (department of Amazonas), where it is relatively uncommon. This species occurs at 1800–2000 m elevation, growing epiphytically in cool, moist, montane cloud forest. Plants may bloom in any month. Conservation status unknown.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** This species is uncommon both in nature and in cultivation, but it is highly desirable. The beautiful, shiny, pinkish-purple flowers are graceful, although some people see the recurved dorsal sepal as a detriment, making the flower appear smaller than it actually is. There is a tendency for the leaf tips of *Masdevallia lamprotyria* and its close relatives (like *Masdevallia lilacina* Königer, *M. leucantha* F. Lehm. Kraenzl., *M. pumila*, and *M. roseola*) to turn brown in cultivation, a possible consequence of low humidity, heat stress or poor water quality. Flowers may appear in any month in cultivation. All of the aforementioned species were placed in subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*.**Figure 4.894 (above)** Vertically mounted plants of *Masdevallia lamprotyria* in flower (Grower: Steve Beckendorf).**Figure 4.895 (facing page)** The graceful flowers of *Masdevallia lamprotyria* are highly prized (Grower: Marni Turkel).



MASDEVALLIA***Masdevallia limax* Luer****Publication:** *Phytologia* 39: 209 (1978)**Etymology:** From the Latin *limax* (slug), referring to the mollusc-like appearance of the tubular flower with short sepaline tails.**Morphology:** *Plants:* 6–10 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long, blackish. *Leaf* 6–8 cm long by 1–1.8 cm wide, elliptical, apex acute, petiole 1.5–2 cm long. *Inflorescence* a raceme, peduncle 3.5–7 cm long, erect to suberect, originating from low on the ramicaul. *Flower* 2.5–3 cm long, single, tubular, base inflated with constriction before aperture, sepaline tails straight, thin, short to medium in length, petals and lip hidden deep within sepaline tube. Flower variations are slight but include size, length of tails, shape of the ventral sepaline “bulge” and intensity of colour.**Range, elevation and habitat:** This species is relatively widespread on both sides of the Central Cordillera in central to southeastern Ecuador (provinces of Morona-Santiago, Pastaza and Tungurahua) where it is not uncommon. *Masdevallia limax* occurs between 1450–2200 m elevation, growing epiphytically in cool, moist to wet, montane cloud forest. Records show that this species blooms between February and May in nature, but it is quite likely to bloom at other times. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** A highly popular species due to its brilliantly coloured, truly charming, and uniquely-shaped flowers, *Masdevallia limax* is most closely allied to two other similar species, *M. maxilimax* (once considered a subspecies of *M. limax*) and *M. mendozae*. *Masdevallia limax* can be distinguished from *M. maxilimax* by its smaller flower size, external smoothness (lack of keeled veins), position of the ventral constriction of the sepaline tube, and its usually longer sepaline tails. *Masdevallia mendozae* also tends to have larger flowers, but these exhibit fine white hairs that line the tube and lack the distinct sepaline tube constriction of the two aforementioned species. All three species were at one time classified in subgenus *Masdevallia*, section *Saltatrices*. *Masdevallia limax* may bloom in any month in cultivation. For those with the appropriate growing conditions, this is a highly recommended species.**Figure 4.896 (above)** Flowers of *Masdevallia limax* are brilliantly coloured (Grower: Ron Parsons).**Figure 4.897 (above)** A *Masdevallia limax* bloom in detail (Grower: J & L Orchids).



Figure 4.898 (above) The related *Masdevallia maximax* has blooms that are larger, with keeled external veins (Grower: Ron Parsons).

Figure 4.899 (below) *Masdevallia mendozae* flowers lack the constriction of the sepaline tube and are lined with fine white hairs (Grower: Marni Turkel).

MASDEVALLIA***Masdevallia livingstoneana*** Roezl ex Rchb.f.**Publication:** *Gard. Chron.*, n.s., 2: 322 (1874)**Etymology:** Benedikt Roezl named this species in honour of the well-known African explorer, David Livingstone (1813–1873), of Scotland.**Homotypic synonym:** *Acinopetala livingstoneana* (Roezl ex Rchb.f.) Luer.**Heterotypic synonyms:** *Masdevallia panamensis* (Schltr.) Ames., *Scaphosepalum panamense* Schltr.**Morphology:** *Plant* 6.5–13.5 cm tall, clumping, branching, erect. *Ramicaul* 0.5–1.5 cm long. *Leaf* 6–12 cm long by 1–1.8 cm wide, elliptical, apex obtuse to rounded, petiole 1–3 cm long. *Inflorescence* a raceme, peduncle 4–6 cm long, slender, erect, originating from low on the ramicaul. *Flower* 2–2.5 cm tall, usually 2 in number, successive, pubescent, sepaline tube curved, narrow and proportionately deep, sepaline tails thick, straight to distinctly recurved, lateral tails invariably shorter than the dorsal, dorsal sepal occasionally recurved to form almost a full circle. Flowers vary in the length, thickness, orientation and colour of the tails, and the extent of dark maroon colouration in the throat of the sepaline tube. The colouration of the tails, which may or may not extend to the flared apex of the tube, ranges from pale plum to greenish-yellow.**Range, elevation and habitat:** *Masdevallia livingstoneana* is found on the Atlantic side of Costa Rica in the province of Limón, in the provinces of Canal Zone, Colón, Darién, Los Santos and Panamá of Panama, and the department of Chocó, Colombia. Almost nothing is known about its scarcity in nature in Costa Rica or Panama. In Colombia, it is known from just one locality in the department of Chocó, where its status is considered critical. This species is listed as vulnerable on the IUCN Red List. *Masdevallia livingstoneana* occurs at 30–850 m elevation, where it grows epiphytically in tropical, wet, humid, lowland forest to warm, lower montane forest. In nature, records show that flowers may occur in almost any month.**Culture recommendations:** See general notes for the genus. *Temperature* warm to warm-intermediate.**Comments:** A somewhat unusual, yet truly charming species, the once rare *Masdevallia livingstoneana* is now relatively available in cultivation. An easy to cultivate species for collectors with warmer growing conditions, and one that thrives in tropical areas, *M. livingstoneana* blooms in cultivation in the autumn to early spring with most plants blooming mid-winter to early spring. However, scattered flowers may appear in other months. This species is related to a group of mostly lowland species that were once classified in section *Minutae*, subgenus *Masdevallia* (syn. genus *Acinopetala*).**Figure 4.900 (above)** The unusual flower of *Masdevallia livingstoneana* (Grower: Andy's Orchids).**Figure 4.901 (above)** *Masdevallia livingstoneana* are brightly coloured and fleshy looking (Grower: Andy's Orchids).

MASDEVALLIA***Masdevallia lucernula* König****Publication:** *Orchidee (Hamburg)* 32: 65 (1981)

Etymology: From the Latin *lucerna* (lamp), with the diminutive suffix *-ula*, referring to the nodding, tubular blooms that have the appearance of small orange lanterns.

Morphology: *Plant* 6.5–12 cm tall, clumping, branching, erect. *Ramicaul* 1.5–3 cm long, blackish. *Leaf* 5–9 cm long by 1.5–2 cm wide, broadly elliptical, apex rounded, petiole blackish, 1.5–4 cm long. *Inflorescence* a raceme, 6.5–10 cm peduncle (as long as or longer than leaves), erect to suberect, originating from low on ramicaul. *Flower* 3–4 cm, single, sepaline tube inflated, abruptly tapered at both ends, aperture narrow, sepaline tails short, straight, often nearly touching at tips, petals and lip hidden within tube. Flowers vary in overall size and length of tails, and range in colour from peachy-orange to brilliant red-orange.

Range, elevation and habitat: Endemic to Peru in the department of Amazonas, *Masdevallia lucernula* is regarded as a rare species. It occurs as an epiphyte at an elevation of approximately 2100 m, in cool to cold, moist, montane cloud forest. No confirmed bloom-time records are known for plants in nature. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: Until relatively recently, there were only a limited number of individuals of this once very rare species in cultivation; fortunately, new importations and propagation have improved its availability. Its scarcity in cultivation may also be a result of its reputation as a difficult to grow species. The inflated, peachy orange to red-orange flowers are enchanting and extremely attractive, and well bloomed plants put on a stunning display. Flowers may appear in any month, but plants usually bloom from mid-winter and mid- to late spring in cultivation. *Masdevallia lucernula* was at one time classified in subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*.



Figure 4.902 (above) Flowers of *Masdevallia lucernula* 'Elle Ronis' (Grower: Ron Parsons).

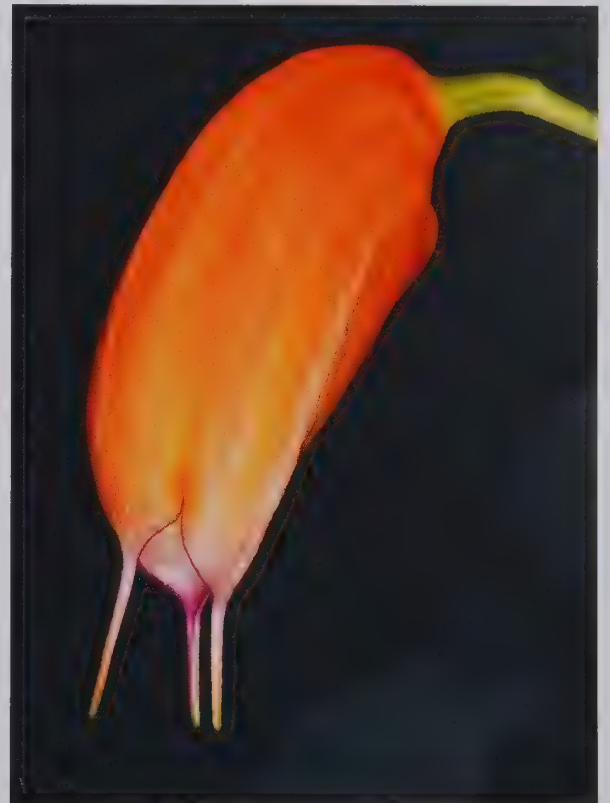


Figure 4.903 (above) Flowers of *Masdevallia lucernula* 'Peaches' (Grower: Marni Turkel).

Figure 4.904 (overleaf) *Masdevallia lucernula* 'Elle Ronis', Certificate of Cultural Merit (AOS). This plant has been awarded two CCM awards, the most recent award (featured) with 36 flowers open at once (Grower: Ron Parsons, Photo: Eric Hunt).



MASDEVALLIA

Masdevallia lychniphora Königer

Publication: *Orchidee (Hamburg)* 31: 116 (1980)

Etymology: From the Greek *lychnis* (lamp) and *phoros* (bearing), referring to the bright red colouration of the lateral sepals.

Morphology: *Plant* 3.5–5.5 cm tall, rarely larger, clumping, branching, erect. *Ramicaul* 1–1.5 cm long, blackish. *Leaf* 2.5–4 cm long by 1–2 cm wide, broadly elliptical, apex rounded, petiole 2–2.5 cm long. *Inflorescence* a raceme, peduncle 1.2–2 cm long, nearly horizontal to barely ascending, slender, originating from low on the ramicaul. *Flower* 3–5 cm tall, single, downward-facing, sepaline cup small, dorsal sepal hooded, sepaline tails short to longish, straight, thin. Flowers vary in size, length of tails and in the intensity of the orange and red colouration. The orange colour ranges from pale to rich cantaloupe-orange, and the reds from brick to brilliant red.

Range, elevation and habitat: Endemic to northern Peru in the department of Amazonas, *Masdevallia lychniphora* occurs at elevations near 2000 m. It grows as an epiphyte in moist, cool, dense, montane cloud forest. Its conservation status is unknown, and no confirmed bloom-time records could be found. Cordelia Head of J & L Orchids (pers. comms., 2011) recalled finding this species growing at the base of a scrubby tree on a very steep and muddy slope near the town of Pomacochas, Peru. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: A truly eye-catching species with brilliant, contrasting colours and a pleasing shape, *Masdevallia lychniphora* is a very popular selection for a miniatures collection. While the downward-facing flowers might be considered a negative point for some collectors, growing this plant on a mount will display blooms to their best advantage. The species does well in pots, but the rhizome should be planted high in the pot so that the inflorescences can drape gracefully over the edge. Plants bloom between the mid-autumn and spring in cultivation. At one time, *M. lychniphora* was classified in subgenus *Masdevallia*, subsection *Caudatae*.



Figure 4.905 (above) The splendid flower of *Masdevallia lychniphora* (Grower: Ron Parsons).

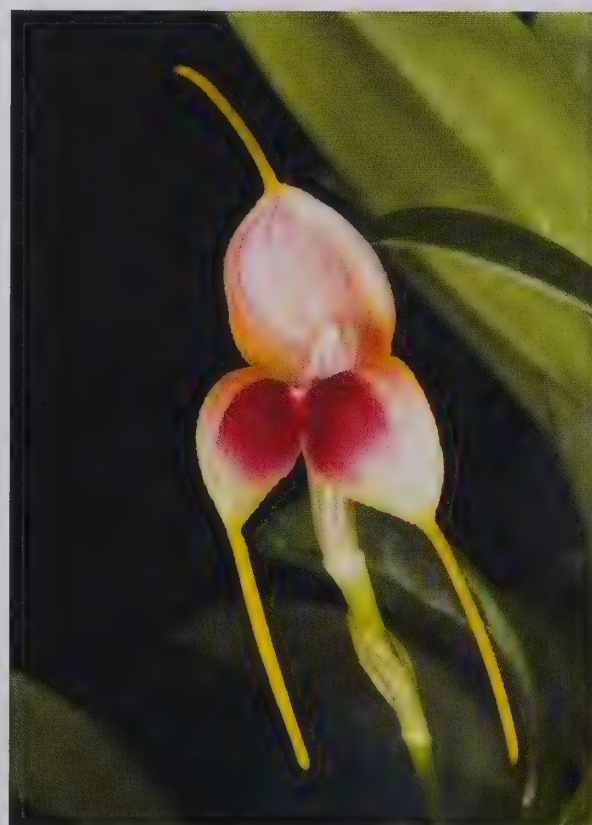


Figure 4.906 (above) Flowers of *Masdevallia lychniphora* are orientated downwards (Grower: Elle Ronis).

MASDEVALLIA***Masdevallia marthae* Luer & R.Escobar****Publication:** *Orquideologia* 13: 84 (1978)**Etymology:** Named to honour Señora Martha Posada de Robledo, of Medellín, Colombia, who has cultivated this species since its discovery in her garden.**Morphology:** *Plant* 7.5–11 cm tall, clumping, branching, erect. *Ramicaul* 1.5–2 cm long. *Leaf* 6–9 cm long by 1–1.5 cm wide, narrowly obovate, apex obtuse to rounded, petiole 1.5–3 cm long. *Inflorescence* a raceme, peduncle 3.5–5 cm long, shorter than leaves, erect, slender, originating from low on ramicaul. *Flower* 4–5 cm tall, single, sepaline tube erect, strongly inflated in the middle, narrowly tapering towards base, with distinct distal constriction before aperture, sepaline tails thin, medium length, straight to slightly curved, petals and lip hidden deep within sepaline tube. Flowers may vary in size, and in the length and orientation of the tails.**Range, elevation and habitat:** A rare endemic, *Masdevallia marthae* occurs in the Central Cordillera of central-western Colombia in the departments of Antioquia and Risaralda. It is known from only two localities, where it is found at elevations near 2400 m, growing as an epiphyte in cool, moist, montane cloud forests. Records suggest that flowering occurs in May in nature, but it is likely to bloom in other months. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See above for the genus. *Temperature* cool.**Comments:** An elegant, and striking species, the erect flowers of *Masdevallia marthae* are not easily confused with those of any other taxon. Uncommon in collections, but certainly worth seeking out, *M. marthae* can produce magnificent flushes of flowers. Plants in collections tend to bloom between mid-winter and late spring. *Masdevallia marthae* was at one time classified in section *Saltatrices* of subgenus *Masdevallia*, and is closely related to *M. ventricularia*, *M. filaria* Luer & R.Escobar, *M. saltatrix* and *M. wuellneri* P. Ortiz.**Figure 4.907 (above)** *Masdevallia marthae* produces distinctive, erect flowers that are not easily confused (Grower: Ron Parsons).



Figure 4.908 (above) A single *Masdevallia marthae* bloom (Grower: Russ Varnado).

Figure 4.909 (below) Prettily clustered *Masdevallia marthae* flowers (Grower: Ron Parsons).

Figure 4.910 (above) *Masdevallia wuellneri* is a related taxon with relatively distinct flowers (Grower: Ron Parsons).

Figure 4.911 (below) *Masdevallia wuellneri* flower in detail (Grower: John Leathers).

MASDEVALLIA***Masdevallia mejiana* Garay****Publication:** Orquideologia 5: 17 (1970)**Etymology:** Named to honour Alvaro Mejía, of Medellín, Colombia. This species was discovered in his collection.**Homotypic synonym:** *Reichantha mejiana* (Garay) Luer.**Morphology:** *Plant* 8–14 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 7–12 cm long by 1.8–2.5 cm wide, oblong-lanceolate to elliptical, apex obtuse, fleshy, petiole to 1.5 cm long. *Inflorescence* a raceme, peduncle 7–17 cm long, suberect to descending, slender, originating from low on the ramicaul. *Flower* 7–10 cm tall, 1–2 in number, successive, sepaline tube shallow, bowl-like (approximately 2.5 cm across), sepaline tails long, straight, sometimes slightly recurved. Variation is slight, but includes flower size, density of spotting, colour intensity and orientation of the sepaline tails.**Range, elevation and habitat:** Endemic to Colombia, *Masdevallia mejiana* is found in the northern region of the Western Cordillera in the department of Antioquia. It occurs at elevations of 500–900 m, growing epiphytically on high, horizontal branches of tall trees along stream borders, exposed to intense light and high humidity in seasonally wet, warm, low montane forest. There is a definite dry season in this region between January and March. The species is said to be locally abundant despite its relatively small range, although the 2006 red book for Colombian orchids (Calderón-Sáenz (Ed.), 2006) states that it is endangered due to illegal collection and deforestation within its narrow range. In habitat, this species blooms profusely between December and February (2000).**Culture recommendations:** See general notes for the genus. *Temperature* warm to warm intermediate.**Comments:** This lovely species is not commonly seen in collections, but it is a choice and ideal selection for growers of warm to warm-intermediate plants. The flowers are of a good size, quite showy, relatively long-lasting, and have an enticing fragrance. Growing *Masdevallia mejiana* on mounts allows the flowers to be displayed beautifully, but sufficient moisture and humidity must be ensured. In cultivation, this species flowers intermittently through the year. It is probably the largest flowered species in the group formerly known as subgenus *Masdevallia*, section *Minutae* (syn. genus *Acinopetala*).**Figure 4.912 (above)** The wonderfully coloured *Masdevallia mejiana* flower (Grower: Brad Cotten).**Figure 4.913 (above)** The flock of *Masdevallia mejiana* blooms (Grower: Ernie Katler).

*MASDEVALLIA**Masdevallia mendozae* Luer

Publication: *Phytologia* 54: 382 (1983)

Etymology: Named in honour of the discoverer of this species, the late Hartman Eudaldo Mendoza (died 1993), a farmer in Vilcabamba, Ecuador. Hartman perished tragically in a bus accident whilst bringing orchids to sell at the market in Loja.

Morphology: *Plant* 4–7.5 cm tall, clumping, branching, erect. *Ramicaul* 1–1.7 cm long, blackish. *Leaf* 3–6 cm long by 1.2–1.6 cm wide, elliptical, apex rounded to obtuse, petiole blackish, 1–1.5 cm long. *Inflorescence* a raceme, peduncle 3–7 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 3–4 cm long, single, rarely two, in number sepaline tube long, narrow, arcuate, with small constriction near base, gradually and slightly flaring towards apex; tube ribbed externally along veins, internally densely pubescent with short, whitish hairs, sepaline tails very short, thin and straight, dorsal tail sometimes recurved, small petals and lip deep within tube. The flowers vary little except in colour, from light orange to red-orange.

Range, elevation and habitat: Somewhat localised in southeastern Ecuador, in the provinces of Loja and Zamora-Chinchipe, *Masdevallia mendozae* can be locally abundant. It occurs at elevations of 1800–2200 m, growing as an epiphyte in moist, shaded, cool, montane cloud forest. Plants are usually found on trunks close to the ground, sometimes on twigs, and rarely as terrestrials in leaf litter. Flowering usually occurs between September and May. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: *Masdevallia mendozae*, like its close relatives *M. hirtzii*, *M. limax*, *M. maxilimax* and *M. morochoi*, is bright orange in colour and tubular in shape. These brilliantly coloured species are some of the most popular in the genus. *Masdevallia mendozae* is perhaps closest to *M. maxilimax* in appearance, but the latter species has a distinct constriction before the aperture, which does not flare, more distinct ribs, and forward-pointing, thinner, slightly longer tails. *Masdevallia mendozae* may bloom at any time in cultivation, and the flowers are long-lived, often lasting several weeks. This species was classified in subgenus *Masdevallia*, section *Saltatrices*.



Figure 4.914 (above) *Masdevallia mendozae* has bright orange flowers (Grower: J & L Orchids).



Figure 4.915 (above) Blooms of the closely related species *Masdevallia morochoi* flower (Grower: Ron Parsons).

Figure 4.916 (overleaf) Though usually single flowered, simultaneous blooming of adjacent *Masdevallia mendozae* growths can produce a wonderful display of gathered blooms (Grower: Jacob Knecht).



MASDEVALLIA***Masdevallia nidifica* Rchb.f.****Publication:** *Otia Bot. Hamburg.*: 18 (1878)**Etymology:** From the Latin *nidificus* (making a nest), referring to the plant habit, possibly alluding to the many, closely-packed leaves.**Homotypic synonym:** *Buccella nidifica* (Rchb.f.) Luer.**Heterotypic synonyms:** *Masdevallia cyathogastra* Schltr., *Masdevallia tenuicauda* Schltr.**Morphology:** Plant 3.5–7 cm tall, clumping to slightly creeping, branching, rhizome often ascending. *Ramicaul* 0.5–1 cm long, erect to suberect. *Leaf* 3–6 cm long by 0.4–1 cm wide, elliptical, apex obtuse to rounded, petiole 1–3 cm long. *Inflorescence* a raceme, peduncle 3–6 cm long, filiform, erect to suberect, originating from low on the ramicaul. *Flower* 3–5 cm tall, single, proportionately small sepaline tube with somewhat inflated base, ventral constriction midway in profile, sepaline tails long, straight and filiform. Flowers vary in size, length of tails and colour; two basic colour forms include red and whitish, and a nearly solid, pale green, but every variation between exists.**Range, elevation and habitat:** Widespread and often common, *Masdevallia nidifica* is found in Nicaragua (departments of Jinotega and Matagalpa), Costa Rica (provinces of Alajuela, Cartago, Guanacaste, Heredia, Limón, Puntarenas and San José), Panama (province of Chiriquí), Colombia (departments of Antioquia, Cauca, Nariño, Norte de Santander and Valle del Cauca), Ecuador (provinces of Azuay, Bolívar, Carchi, Cotopaxi, El Oro, Guayas, Imbabura, Manabí and Pichincha), and it has also been found in Peru (Pablo Bermudez, pers. comms., 2009). It also occurs over a wide altitudinal range, from 450–2500 m, growing epiphytically in warm, low montane rain forest to cool, moist, montane cloud forest. In Colombia, it has also been found growing lithophytically on cliffs. In nature, plants may bloom in any month.**Culture recommendations:** See general notes for the genus. *Temperature* warm to cool, depending on provenance of plant. If provenance is uncertain, grow in intermediate-cool conditions.**Comments:** This highly rewarding, floriferous and very prolific species is easy to obtain and grow. Although *Masdevallia nidifica* will grow well when potted, it is strongly recommend that this species be mounted if adequate moisture and humidity can be provided. Plants are relatively fast-growing, so a larger mount will not be so quickly outgrown. When in full bloom, a specimen plant is a remarkable sight! In cultivation, this species can bloom in any month. The closest relatives to *M. nidifica* are most likely *M. bucculenta* and *M. ventricosa*, although the latter two species are smaller flowered, with much shorter tails. All three species were at one time placed within subgenus *Nidifica* (syn. genus *Buccella*).**Figure 4.917 (above)** *Masdevallia nidifica* leaves and flowers (Grower: San Francisco Conservatory of Flowers).**Figure 4.918 (above)** *Masdevallia nidifica* photographed near Cotacachi, Ecuador, elevation 3500 m (Photo: Gary Yong Gee).**Figure 4.919 (overleaf)** A specimen sized *Masdevallia nidifica* in spectacular full bloom (Grower: Mary Gerritsen).



MASDEVALLIA

Masdevallia patriciana Luer

Publication: *Phytologia* 39: 219 (1978)

Etymology: Named to honour Señora Patricia Cevallos de Malo, wife of Dr. Benigno Malo of Cuenca, Ecuador, who discovered the species.

Morphology: *Plant* 3–3.5 cm tall, clumping, branching, erect. *Ramicaul* 0.4–0.6 cm long. *Leaf* 2.5–3 cm long by 0.8–1 cm wide, elliptical-obovate, apex obtuse, petiole blackish, 1–2 cm long. *Inflorescence* a raceme, peduncle 1.5–3 cm long, erect to suberect, originating from low on the ramicaul. *Flower* 3.5–6.5 cm tall, single, small, sepaline cup campanulate with distinct ventral bulge, sepaline tails filiform, proportionately long, straight. The only variations noted by the authors are in the length of the sepaline tails and slight differences in the colour of the flowers.

Range, elevation and habitat: *Masdevallia patriciana* is endemic to the province of Morona-Santiago, Ecuador, where it is found at elevations ranging from 2300–2800 m, growing epiphytically in cool, moist, montane cloud forest. No confirmed bloom-time records are known, but it is likely that this species can flower at any time. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

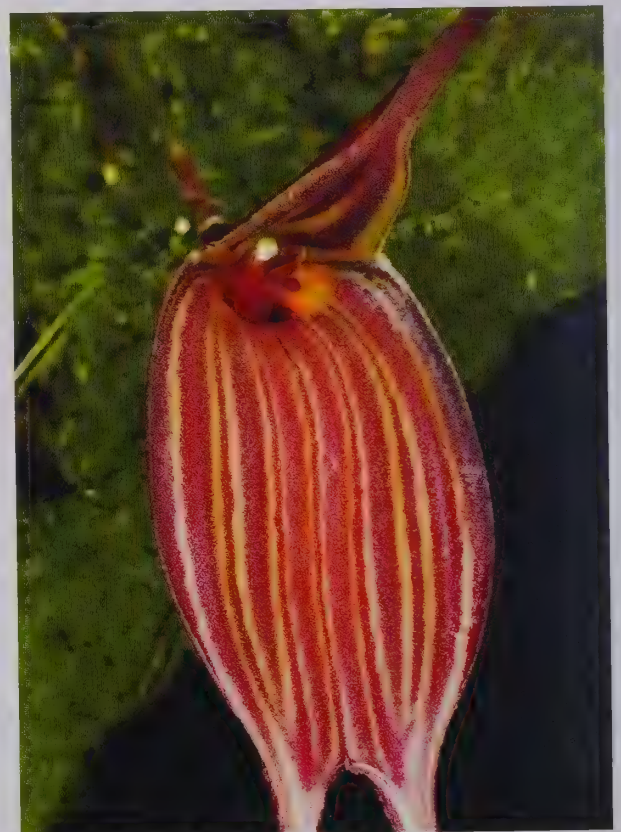
Comments: This species, with its small, cheerful, bright, multicoloured flowers, is very popular and grown by many collectors. It is often in bloom and can put on exuberant floral displays. Hybrids made with this species as a parent are often rather delightful; it imparts its floriferous habit and brilliant colours to its progeny. *Masdevallia patriciana* was placed within subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*.



Figure 4.920 (above) A pair of *Masdevallia patriciana* flowers (Grower: Russ Varnado).



Figure 4.921 (above) Blooms of *Masdevallia patriciana* are characteristically bright and colourful (Grower: Ron Parsons).

MASDEVALLIA***Masdevallia patula* Luer & Malo****Publication:** *Phytologia* 39: 220 (1978)**Etymology:** From the Latin *patulus* (spreading, opened up), referring to the large, open synsepal.**Homotypic synonym:** *Luzama patula* (Luer & Malo) Luer.**Morphology:** Plant 6–10 cm tall, clumping, branching, erect. *Ramicaul* 1–1.3 cm long. *Leaf* 4–7 cm long by 1–1.6 cm wide, elliptical, apex acute, petiole 2–3 cm long. *Inflorescence* a relatively congested raceme, peduncle 10–17 cm long, slender, horizontal to pendent, originating from low on the ramicaul. *Flower* 10–20 cm tall, 1–3 in number, successive, often nodding, sepaline cup somewhat funnel-shaped, dorsal sepal often forward pointing, much shorter than lateral sepals, lateral sepals oblong, connate for their length, tapering into straight, narrow sepaline tails. Flowers vary dramatically in the length of the sepaline tails and in their colour, which ranges from reddish to brownish tones.**Range, elevation and habitat:** Found in southern Ecuador in the provinces of Azuay, Morona-Santiago and Zamora-Chinchipec, and recently in Peru (P. Bermudez, pers. comms., 2009), *Masdevallia patula* occurs at 1400–2200 m elevation, where it grows epiphytically in cool, moist, montane cloud forest. Plants in nature tend to bloom between February and May. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to cool.**Comments:** This desirable species varies in flower size more than most species of *Masdevallia*; some individuals have such long sepaline tails that the flowers are twice as long as the height of the plant. Other variations include length and width of the sepaline tube, colour shades, and the pattern of striping. Although this species may be grown potted, growing this species on a mount is almost a prerequisite due to its pendent spikes and long flowers; ensure that plants receive sufficient moisture on their mounts. Plants in cultivation may bloom in any month. This species, with *M. amaluzae*, belongs to a group of related species once classified as subgenus *Pygmaea* section *Amaluzae* (syn. genus *Luzama*).**Figure 4.922 (above)** An attractively mounted *Masdevallia patula* 'Stony Point' in flower (Grower and Photo: Marni Turkel).**Figure 4.923 (above)** Detail of the handsomely marked *Masdevallia patula* flower (Grower: Mary Gerritsen).

MASDEVALLIA

Masdevallia picturata Rchb.f.

Publication: *Otia Bot. Hamburg.*: 16 (1878)

Etymology: From the Latin *picturatus* (embroidered, variegated, picture-like), referring to the spotted, multicoloured blooms.

Homotypic synonym: *Fissia picturata* (Rchb.f.) Luer.

Heterotypic synonyms: *Masdevallia cryptocopis* Rchb.f. ex Kraenzl., *Masdevallia meleagris* Rchb.f., *Masdevallia ocanensis* Kraenzl., *Masdevallia picturata* subsp. *minor* (Cogn.) Luer, *Masdevallia picturata* var. *minor* Cogn., *Rodrigoa cryptocopis* (Rchb.f. ex Kraenzl.) Braas.

Morphology: *Plant* 2.5–9.5 cm tall, clumping, branching, erect. *Ramicaul* 0.2–2 cm long, blackish. *Leaf* 2.5–7.5 cm long by 0.3–1.1 cm wide, narrowly obovate to elliptical, apex obtuse, petiole 1–2 cm long. *Inflorescence* a raceme, peduncle 3–10 cm long, erect to suberect, slender, originating from ramicaul. *Flower* 2.5–7 cm tall, single, sepaline cup small, partially obscured by petals and lip, dorsal sepal hooded, lateral sepals free to base, sepaline tails straight, filiform, deflexed at their attachment with sepals. Flowers vary greatly in overall size and length of sepaline tails, as well as in colour, pattern, and size and density of spotting.

Range, elevation and habitat: Possibly the most widespread species of *Masdevallia*, *M. picturata* occurs in Costa Rica (provinces of Alajuela, Cartago, Heredia and San José), Panama (provinces of Chiriquí and Panamá), Colombia (departments of Antioquia, Boyacá, Caldas, Cundinamarca, Nariño, Norte de Santander, Risaralda, Santander, Tolima and Valle de Cauca), Venezuela, Guyana, Ecuador (provinces of Azuay, Carchi, Loja, Morona-Santiago and Zamora-Chinchipe), Peru (departments of Huánuco, Junin and Pasco) and Bolivia (departments of Cochabamba and La Paz). *Masdevallia picturata* occurs over a wide elevation range, from 700–2900 m, where it grows as an epiphyte on mossy branches, tree trunks and even lianas, sometimes as a lithophyte on mossy rocks, and occasionally as a terrestrial in moist, cool to cold, montane cloud forest. It can be quite abundant in some habitats. Flowering in nature may occur in any month.

Culture recommendations: See general notes for the genus. *Temperature* warm to cold, depending on plant provenance. If provenance is uncertain, grow at the cool end of intermediate.

Comments: This lovely and popular species has been in cultivation for a long time. It is not demanding, relatively easy to obtain and certainly beautiful. Since this species is so widespread in nature, different populations may differ greatly in plant and flower proportions; the sepaline tails in particular have a wide range of lengths. Flowers may appear in any month in cultivation. *Masdevallia picturata* was at one time placed in subgenus *Fissia* (syn. genus *Fissia*).



Figure 4.924 (above) A pair of *Masdevallia picturata* flowers (Grower: Russ Varnado).



Figure 4.925 (above) *Masdevallia picturata* blooms show a great deal of variety (Grower: Marni Turkel).

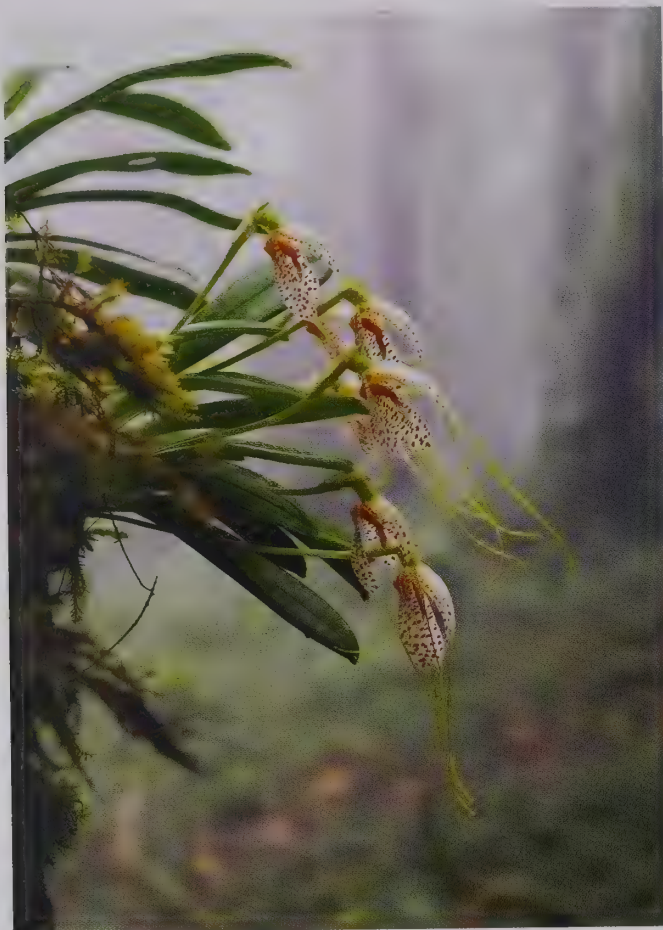


Figure 4.926 (above left) Pendent *Masdevallia picturata* blooms photographed in nature (Photo: Daniel Jimenez).

Figure 4.927 (above right) *Masdevallia picturata* captured in situ on the trail to the top of Mt. Roraima, Venezuela (Photo: Brad Wilson).

Figure 4.928 (below) *Masdevallia picturata* blooming in situ on a mossy tree trunk in Colombia (Photo: Luiz Pérez).

MASDEVALLIA

Masdevallia prodigiosa Königer

Publication: *Orchidee (Hamburg)* 36: 87 (1985)

Etymology: From the Latin *prodigiosus* (unnatural, marvellous), referring to the colour and form of the flower.

Morphology: *Plant* 6–9 cm tall, clumping, branching, erect. *Ramicaul* 0.8–1.8 cm long, blackish. *Leaf* 5–7.5 cm long by 1.2–2.5 cm wide, broadly elliptical, apex rounded to obtuse, petiole 1–2 cm long. *Inflorescence* a raceme, peduncle 2.5–5.5 cm long, nearly horizontal to pendent, originating from low on the ramicaul. *Flower* 5–10 cm tall, single, erect, dorsal sepal distinctly hooded, sepaline tube shallow, campanulate, sepaline tails thin, straight, often deflexed at base. The most variable feature of the flower is the orientation of the tails, from erect to strongly deflexed at the point of attachment to the sepals. Luer (2002) indicates that flowers can be “brilliant, pure yellow to deep orange” in colour, but the authors have not seen or received reports of anything other than orange-flowered forms.

Range, elevation and habitat: *Masdevallia prodigiosa* is relatively localised in the province of Bongará, department of Amazonas, north-central Peru, at 2000–2100 m elevation. It grows epiphytically in moist, cool, montane cloud forest. The type locality is between Chachapoyas and Pomacochas at 2000 m. This species is listed as endangered on the IUCN Red List, having become much rarer in recent years due to logging and clearing of land for agricultural use. Plants in nature may bloom at any time.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: The incredible, intricate flowers with their proportionately large size, unique shape and unusual, but beautiful colouration, have made *Masdevallia prodigiosa* a favourite amongst growers. Although the plants grow equally well potted or mounted, the flowers are displayed to their best advantage when grown on a mount due to their pendent habit. Plants in cultivation bloom most often during the winter months. In the past, *M. prodigiosa* was placed in section *Caudatae*, subgenus *Masdevallia*, a fairly cohesive group of related species.



Figure 4.929 (above) *Masdevallia prodigiosa* blooms are generously sized and beautiful (Grower: John Leathers).

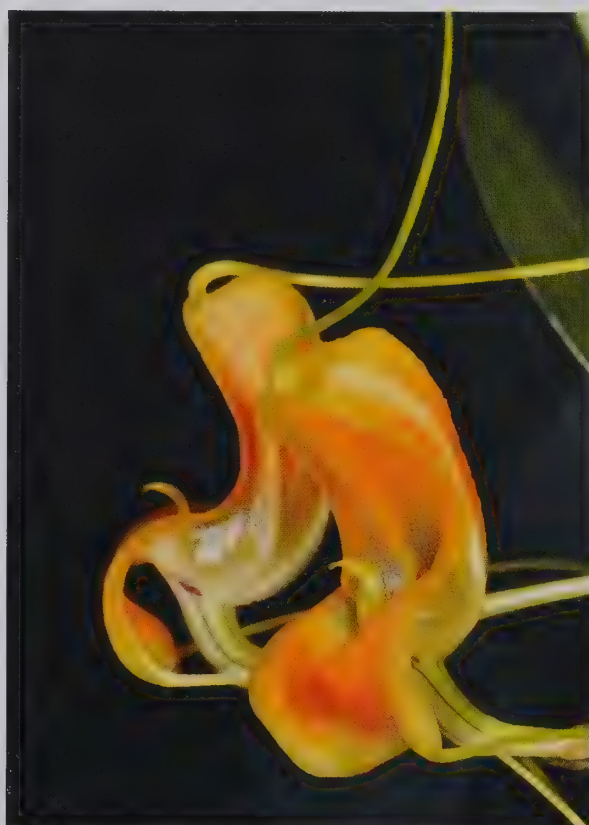


Figure 4.930 (above) A pair of pale orange *Masdevallia prodigiosa* flowers (Grower: Marni Turkel).

MASDEVALLIA

Masdevallia pteroglossa Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 7: 81 (1920)

Etymology: From the Greek *ptera* (winged) and *glossa* (tongue), referring to the wing-like lateral lobes of the lip.

Homotypic synonym: *Masdevallia wagneriana* var. *pteroglossa* (Schltr.) Braas.

Heterotypic synonyms: *Masdevallia wagneriana* var. *colombiana* Braas, *Masdevallia xerophila* F. Lehm. & Kraenzl.

Morphology: Plant 2.5–5.5 cm tall, clumping, branching, erect. *Ramicaul* 0.5–1 cm long, blackish. *Leaf* 2–4.5 cm long by 0.7–1.5 cm wide, elliptical, apex obtuse, petiole 0.5–2 cm long. *Inflorescence* a raceme, peduncle 2.5–4.5 cm long, erect, slender, originating from low on the ramicaul. *Flower* 5–6.5 cm tall, single, widely spread, sepaline tube shallowly campanulate, faintly pubescent, sepaline tails long, thin, straight, sometimes reflexed at base, labellum hinged, mobile. Flowers vary in terms of size, tail length, intensity of red markings and density of spotting.

Range, elevation and habitat: *Masdevallia pteroglossa* is widespread in the Western Cordillera of western Colombia, in the departments of Antioquia and Cauca. Collections are from just five historical localities and this species is considered vulnerable. It occurs at elevations of 1600–1800 m, where it grows epiphytically on tree trunks in cool, montane cloud forests. Plants flower in nature between October and November, and possibly at other times also.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: A species that has been in cultivation for a relatively long time, *Masdevallia pteroglossa* remains a popular choice. It is quite similar to the closely related *M. wagneriana* Linden ex. Lindl. from the northern coastal mountains of Venezuela. The latter species has larger flowers with a reflexed dorsal sepaline tail. The side-lobes of the hinged lip of *M. wagneriana* are “broadly rounded” whereas those of *M. pteroglossa* are hook-like and pointed (Luer, 2002). Plants of *M. pteroglossa* in cultivation may bloom in any month and mature plants may bloom for much of the year. Both *M. pteroglossa* and *M. wagneriana* were classified within subgenus *Masdevallia*, section *Masdevallia*, subsection *Oscillantes*.



Figure 4.931 (above) *Masdevallia pteroglossa* flowers are variably spotted with red (Grower: Steve Beckendorf).



Figure 4.932 (above) Detail of a *Masdevallia pteroglossa* flower (Grower: Ron Parsons).

Figure 4.933 (facing page) *Masdevallia wagneriana* is a related species with larger flowers (Grower: Marni Turkel).



MASDEVALLIA***Masdevallia pumila* Poepp. & Endl.****Publication:** *Nov. Gen. Sp. Pl.* 2: 6 (1836)**Etymology:** From the Latin *pumilus* (dwarf), referring to the growth habit of the plant.**Heterotypic synonyms:** *Masdevallia filamentosa* Kraenzl., *Masdevallia grandiflora* C.Schweinf.**Morphology:** *Plant* 6.5–12 cm tall, clumping, branching, erect. *Ramicaul* 0.5–1.5 cm long. *Leaf* 6–10.5 cm long by 0.7–1 cm wide, narrowly elliptic, apex acute, petiole indistinct, blackish. *Inflorescence* a raceme, 2–4.5 cm peduncle, erect, originating from low on the ramicaul. *Flower* 4–5 cm tall, single, sepaline cup proportionately small, tubular to narrowly campanulate, aperture obscured by the petals and lip when viewed head-on, sepaline tails narrowly attenuate, tapering gracefully, with laterals often curved upwards. The whitish-lilac flowers are occasionally suffused with rose.**Range, elevation and habitat:** *Masdevallia pumila* is widespread and historically locally common to abundant on the eastern Andean slopes of southern Colombia (departments of Cauca, Cundinamarca and Putumayo), Ecuador (provinces of Azuay, Morona-Santiago, Pastaza and Zamora-Chinchiipe), Peru (departments of Huánuco, Pasco and Cusco) and central Bolivia (departments of Cochabamba, La Paz and Santa Cruz). It occurs at elevations of 500–2350 m, growing epiphytically in intermediate to cool, moist, montane cloud forest. Schweinfurth (1958) describes *M. pumila* as growing in mountain woods on old trees in the department of Huánuco, near Cuchero, Peru. Plants may bloom in any month in nature. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to cool. This species requires high quality water.**Comments:** A widespread species in nature, yet not commonly seen in cultivation, *Masdevallia pumila* can be quite floriferous; an excellent trait. This species is closely related to *M. roseola*, but differs in colouration, and the latter species has ascending lateral sepals and tails. Luer (2001) states that variations exist that are intermediate between the two species. Other close relatives include *M. lilacina* Königer, *M. lamprotyria* and *M. leucantha* F.Lehm. & Kraenzl.; each of the aforementioned species was at one time classified in subgenus *Masdevallia* section *Masdevallia* subsection *Masdevallia*. Plants may bloom in any month in cultivation.**Figure 4.934 (above)** *Masdevallia pumila* is a pretty, floriferous species (Grower: Hanging Gardens).**Figure 4.935 (above)** *Masdevallia pumila* flowers are usually whitish to whitish-lilac in colour (Grower: Hanging Gardens).

MASDEVALLIA***Masdevallia richardsoniana* Luer****Publication:** *Lindleyana* 3: 55 (1988)

Etymology: Named in honour of the late Don Richardson of Manhasset, New York, founder and first president of the Greater New York Orchid Society, well-known for his extensive orchid knowledge.

Homotypic synonym: *Alaticaulia richardsoniana* (Luer) Luer.

Morphology: *Plant* 5–9 cm tall, clumping, branching, erect. *Ramicaul* 1–1.5 cm long. *Leaf* 4–7.5 cm long by 0.8–1.1 cm wide, elliptical, apex sub-acute, lamina fleshy, petiole 1–1.5 cm long. *Inflorescence* a raceme, peduncle 2–4 cm long, slender, triquetrous to terete, originating from the ramicaul. *Flower* 2.5–3 cm tall, single (occasionally followed by a second), small sepaline tube with proportionately long, straight, thickened sepaline tails. Flowers vary in length and thickness of tails and in the extent of dark purplish colouration.

Range, elevation and habitat: Endemic to central Peru in the department of Junín, *Masdevallia richardsoniana* grows as an epiphyte in cool, moist, montane cloud forest at elevations of approximately 1800 m. No bloom-time records are known for this species. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: A truly lovely species, *Masdevallia richardsoniana* is relatively well known from cool-growing collections. The striking and distinctive flowers are not likely to be confused with any others in the genus. Although the inflorescences are shorter than the leaves, the boldly-marked flowers are well presented, sometimes in profusion. In cultivation, flowering usually occurs in mid-autumn to mid-winter. *Masdevallia richardsoniana* is one of a large group of species formerly placed within subgenus *Polyantha*, section *Alaticaula* (syn. genus *Alaticaulia*).



Figure 4.936 (above) The wonderful, striking flowers of *Masdevallia richardsoniana* (Grower: Marni Turkel).

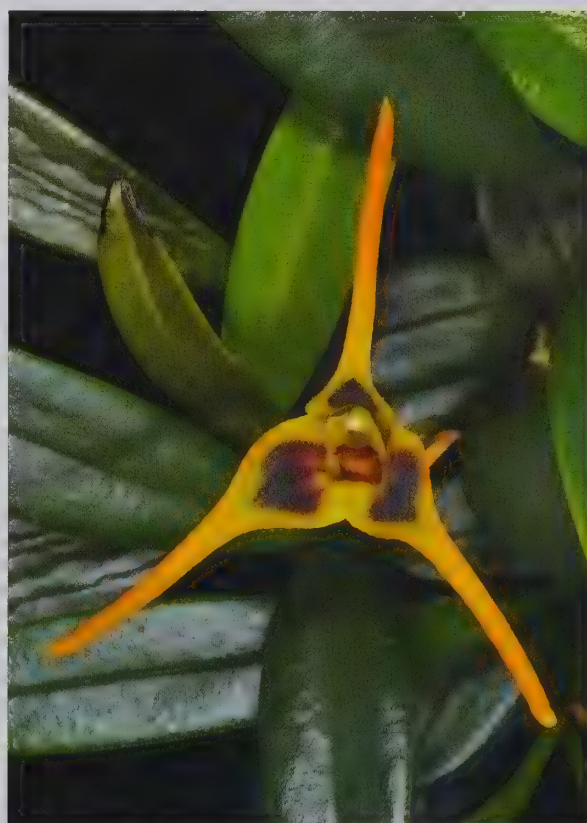


Figure 4.937 (above) The extent of purplish colouration in *Masdevallia richardsoniana* blooms varies (Grower: Ron Parsons).

MASDEVALLIA***Masdevallia roseola* Luer****Publication:** *Phytologia* 47: 67 (1980)**Etymology:** From the Latin *roseolus* (rosy, pink, pinkish), referring to the colour of the flower.**Morphology:** *Plant* 7–11.5 cm tall, clumping, branching, erect. *Ramicaul* 2–3.5 cm long, blackish. *Leaf* 5–8 cm long by 1–1.2 cm wide, narrowly elliptical, apex acute, petiole indistinct. *Inflorescence* a raceme, peduncle 3–4 cm long, erect, slender, originating from low on the ramicaul. *Flower* 4–5.5 cm wide, single, sepaline tube small, campanulate, aperture obscured by the petals and lip, sepaline tails long and narrow, attenuate. Flowers vary in shape, size, length and orientation of tails (forward or outwards), as well as intensity of colour.**Range, elevation and habitat:** *Masdevallia roseola* is evidently uncommon in nature. It is found in the southeastern part of Ecuador, in the provinces of Morona-Santiago and Zamora-Chinchipe, at elevations of 1500–1800 m. It has also recently been found in Peru (P. Bermudez, pers. comms., 2009). It grows epiphytically in cool, moist to wet, montane cloud forest. In Peru, plants bloom between June and August. Conservation status unknown.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** This lovely species is uncommon in cultivation, but its graceful shape, unusual colour and ease of culture are fine qualities. *Masdevallia roseola* is closely related to *M. pumila*, with intergrades found in nature (Luer, 2001). As mentioned under *M. pumila*, this species is also related to *M. lamprotyria*, *M. lilacina* Königer and *M. leucantha* F. Lehm. & Kraenzl., all of which were at one time classified within subgenus *Masdevallia*, section *Masdevallia*, subsection *Masdevallia*. In collections, *M. roseola* tends to bloom between mid-summer and late autumn.**Figure 4.938 (above)** *Masdevallia roseola* produces numerous, graceful flowers of an unusual shade of pinkish-purple (Grower: Hanging Gardens).

MASDEVALLIA

Masdevallia rubiginosa Königer

Publication: *Orchidee (Hamburg)* 31: 178 (1980)

Etymology: From the Latin *rubiginosus* (rusty or brownish red), referring to the colour of the flower.

Morphology: *Plant* 5–8.5 cm tall, clumping, branching, erect. *Ramicaul* 1–1.5 cm long, blackish. *Leaf* 4–7 cm long by 1.5–2 cm wide, broadly elliptical, apex rounded, petiole blackish, 1–3 cm long. *Inflorescence* a raceme, peduncle 2–2.5 cm long, horizontal to ascending, slender, originating from low on the ramicaul. *Flower* 2.5–3 cm tall, single, spreading widely, slightly flattened, sepaline cup tiny, sepaline tails short to medium-length, strongly recurved, labellum hinged, mobile. Flowers vary somewhat in size, shape, tail length and intensity of colour.

Range, elevation and habitat: *Masdevallia rubiginosa* is fairly widespread and relatively common in southeastern Ecuador, in the provinces of Morona-Santiago and Zamora-Chinchi. It is also found in northern Peru in the department of Amazonas at many locations. *Masdevallia rubiginosa* grows epiphytically in cool, montane cloud forest at elevations up to 2000 m. This species flowers between December and March in nature (Ivan Portilla, pers. comms., 2012).

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: Relatively common in collections, *Masdevallia rubiginosa* is an especially charming species. The fuzzy, peach-coloured flowers are displayed to their best advantage when grown on a mount due to their often downward-facing habit. If pot grown, it is best to mound the soil such that the plants are raised, allowing their blossoms to hang over the edge. Plants may bloom in any month in cultivation, but rarely do so in profusion; flowers most commonly occur singly.

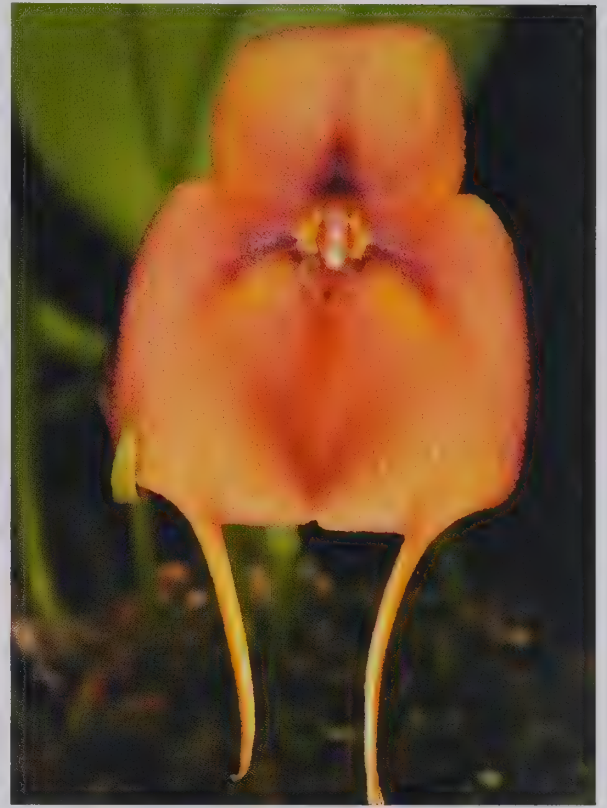


Figure 4.939 (above) The peach coloured bloom of *Masdevallia rubiginosa* (Grower: Elle Ronis).



Figure 4.940 (above) *Masdevallia rubiginosa* flowers vary somewhat in shape and colour intensity (Grower: Ron Parsons).

MASDEVALLIA***Masdevallia saltatrix* Rchb.f.****Publication:** *Linnaea* 41: 10 (1876)**Etymology:** From the Latin *saltatrix* (female dancer), referring to the elegantly-shaped flowers.**Morphology:** *Plant* 5–13 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 4–11 cm long by 1–2.3 cm wide, elliptical, apex rounded, petiole 1–4 cm long. *Inflorescence* a raceme, peduncle 2–6.5 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 3–4 cm tall, single, sepaline tube erect, narrow, distinctly sigmoid in profile with prominent protrusion midway, aperture triangular, flaring, sepaline tails proportionately long, straight, thickish, clavate, petals and lip hidden deep within sepaline tube.**Range, elevation and habitat:** *Masdevallia saltatrix* is known from small areas in the municipalities of Frontino and Abjorral in the department of Antioquia, in the Western Cordillera of western Colombia. Even so, this species is not uncommon. It has also been collected in Ecuador in the province of Pichincha. *Masdevallia saltatrix* occurs between 1800–2000 m in elevation, growing as an epiphyte on moss-covered trees in cool, damp to moist, montane cloud forests. This species is listed as vulnerable on the IUCN red list and in the Colombian red book (Calderón-Sáenz (Ed.), 2006). One record indicates that it was collected in flower from Ecuador in November, but it is likely to bloom in other months also.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** Although the delightful *Masdevallia saltatrix* has been in cultivation for a long time, it is uncommon in collections. Unfortunately, many plants purchased as *M. saltatrix* are actually a close relative, *M. ventricularia*. The flowers of *M. saltatrix* have a rather red exterior, a dark spotted pattern in the bright yellow throat of the sepaline tube and slightly clavate, deflexed sepaline tails. In contrast, the flowers of *M. ventricularia* are reddish-brown on the outside, with narrow vertical stripes within, and possessed of shorter, thin, non-clavate sepaline tails. In cultivation, *M. saltatrix* may bloom at any time of year. Both of the aforementioned species belong to a group of plants once classified within section *Saltatrices*, subgenus *Masdevallia*.**Figure 4.941 (above)** The almost *Arisaema*-like flower of *Masdevallia saltatrix* (Grower: Gary Meyer).**Figure 4.942 (above)** A *Masdevallia saltatrix* flower seen in profile (Grower: Malli Rao).

MASDEVALLIA***Masdevallia scabrilinguis* Luer****Publication:** *Phytologia* 44: 168 (1979)**Etymology:** From the Latin *scabri* (rough, scabrid) and *linguis* (tongue), referring to the labellum.**Homotypic synonym:** *Acinopetala scabrilinguis* (Luer) Luer.**Morphology:** Plant 7–11.5 cm tall, clumping, branching, erect. *Ramicaul* 1–1.5 cm long. *Leaf* 6–10 cm long by 0.9–1.2 cm wide, narrowly obovate, apex sub-acute to rounded, petiole indistinct, 0.5–2 cm long. *Inflorescence* a raceme, peduncle 4–8 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 1.8–2.5 cm, tall 1 or occasionally 2 in number, successive, sepaline tube proportionately small, narrow, campanulate, sepaline tails proportionately long, straight. Flowers vary in size, length of inflorescence, and in the length and colour of the tails, which range from yellow to orange.**Range, elevation and habitat:** *Masdevallia scabrilinguis* is a locally common species in the provinces of Puntarenas and San José, Costa Rica, and the province of Chiriquí, Panama. It grows as an epiphyte in subtropical rain forests to montane cloud forests at elevations of 915–1300 m. It usually flowers between January and April.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate.**Comments:** *Masdevallia scabrilinguis* is a cute, floriferous species that is easy to cultivate and bloom. It can produce random flowers at any time, but does so most often between mid-winter and early to mid-spring in cultivation. This species, in common with many of its relatives in the former section *Minutae* (syn. genus *Acinopetala*), can produce magnificent mass blooms. A similar species, *M. attenuata* Rchb.f., differs basically in having a larger flower, as well as a few longitudinal reddish lines along the veins at the base of the sepaline tube on both the inside and outside. *Masdevallia scabrilinguis* grows equally well potted or mounted, but larger plants can become somewhat top-heavy on a mount and are thus better suited to pots.**Figure 4.943 (above)** The cute little flowers of *Masdevallia scabrilinguis* (Grower: Elle Ronis).**Figure 4.944 (above)** *Masdevallia scabrilinguis* may mass bloom to wonderful effect (Grower: Elle Ronis).

MASDEVALLIA***Masdevallia setacea* Luer & Malo****Description:** *Selbyana* 2: 379 (1978)**Etymology:** From the Latin *setaceus* (with bristles or stiff hairs), referring to the long sepaline tails.**Morphology:** *Plants* 6–10.5 cm tall, clumping, branching, erect. *Ramicaul* 1–1.5 cm long. *Leaf* 5–9 cm long by 1.5–2.5 cm wide, broadly elliptical, apex obtuse, petiole blackish, 2–3 cm long. *Inflorescence* a raceme, peduncle 6–9 cm long, erect, slender, originating from low on the ramicaul. *Flower* 10–23 cm tall, single, spreading widely, sepaline tube tiny, sepaline tails long, thin, and straight. The flowers range in colour from cream to rich, bright pink-purple, and vary greatly in size and shape. The purple forms tend to have distinctly reflexed lateral sepals.**Range, elevation and habitat:** Uncommon, but somewhat widespread, *Masdevallia setacea* is found in southeastern Ecuador in the provinces of Loja, Morona-Santiago and Zamora-Chichipe, and northeastern Peru (departments of Amazonas and San Martín). It grows epiphytically in moist, cool, montane cloud forests at elevations between 1600–2400 m, but is becoming increasingly uncommon in nature due to habitat degradation and possibly excessive collection. In nature, it blooms in the late winter to early spring.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** This elegant and desirable species has large to huge flowers sometimes twice the size of the plant. The flowers of *Masdevallia setacea* are highly variable in colour and in shape, but all variations are highly collectible. The oval dorsal sepal is somewhat hooded and the lateral sepals are often, but not always, deflexed. Some forms of this species can be difficult to differentiate from *M. immensa*, another Peruvian species, and indeed the specific distinctions between the two species are unclear even to the authors. Both species have been placed in section *Caudatae*, subgenus *Masdevallia*. In cultivation *M. setacea* blooms most profusely during late winter and early spring.**Figure 4.945 (above)** The large flowered *Masdevallia setacea* (Grower: Ron Parsons).**Figure 4.946 (above)** The *Masdevallia setacea* bloom is elegant and the tails long (Grower: Russ Varnado).

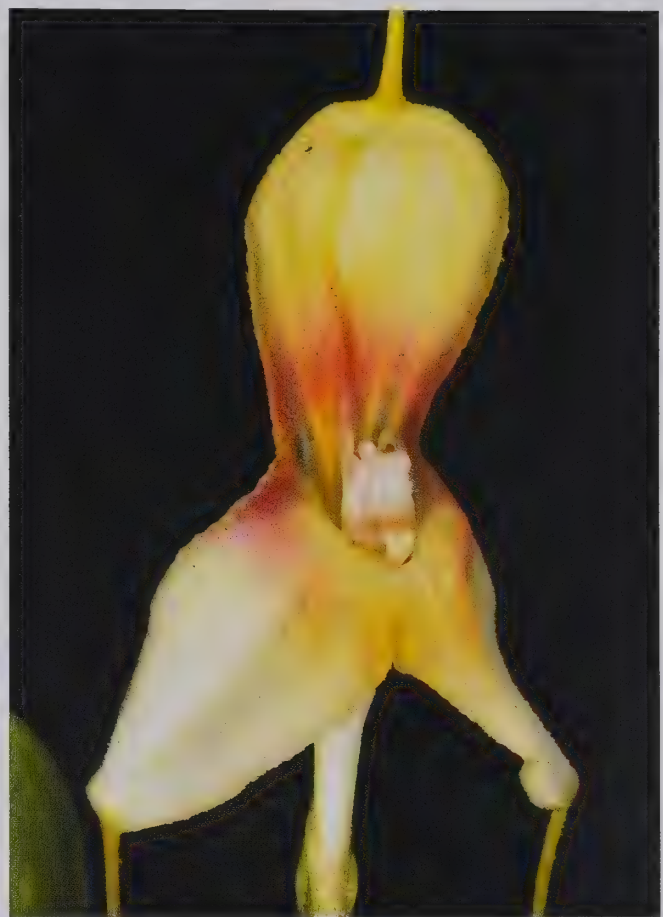


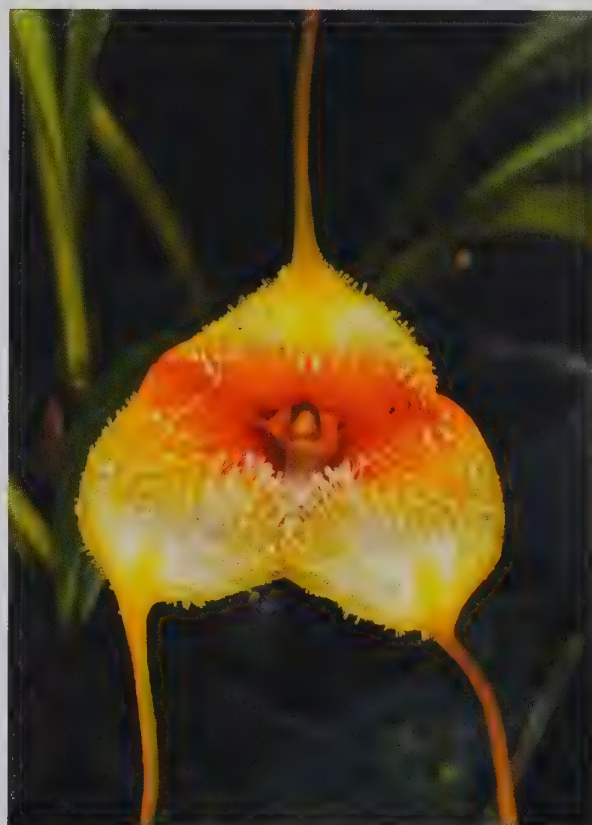
Figure 4.947 (above) A pale flowered *Masdevallia setacea* (Grower: Marni Turkel).

Figure 4.948 (below) A *Masdevallia setacea* flower with strongly deflexed lateral sepals (Grower: Russ Varnado).

Figure 4.949 (above) *Masdevallia setacea* pale form flower detail (Grower: Sherry Bridygham).

Figure 4.950 (below) A *Masdevallia setacea* flower with white, yellow and peachy purple colouration (Grower: Mary Gerritsen).

MASDEVALLIA***Masdevallia sprucei* Rchb.f.****Publication:** *Otia Bot. Hamburg.*: 17 (1878)**Etymology:** Named to honour Richard Spruce (1817–1893), an English bryologist with an interest in plants, and who collected in South America between 1849–1864.**Homotypic synonym:** *Alaticaulia sprucei* (Rchb.f.) Luer.**Morphology:** *Plant* 3.5–7.5 cm tall, clumping, branching, erect. *Ramical* 0.5–0.7 cm long. *Leaf* 3–7 cm long by 0.8–1.1 cm wide, elliptical, apex obtuse, petiole 0.5–1.5 cm long. *Inflorescence* a congested raceme, peduncle 5–6 cm long, slender, triquetrous to terete, erect, originating from low on the ramical. *Flower* 2–2.5 cm tall, 1–3 (rarely more) in number, successive, sepaline tube small, campanulate, sepals flaring at aperture, dorsal sepaline tail invariably longer than lateral tails. Variations include flower shape, sepaline tail length, and the intensity of the yellow and red colouration.**Range, elevation and habitat:** Native to southern and southeastern Venezuela (states of Amazonas and Bolívar) and north-central Brazil (state of Amazonas), *Masdevallia sprucei* occurs in habitats from which few other pleurothallid species are known (Luer, 2000). This species is also listed as occurring in Colombia and Ecuador (Dodson, 1992), but that seems unlikely. It is found at elevations of 100–800 m elevation, growing as an epiphyte, often near rivers, in tropical forest, and warm, lower montane forest. It may flower in any month in nature. Conservation status unknown.**Culture recommendations:** See general notes for the genus. *Temperature* warm to warm-intermediate.**Comments:** Definitely one of the more striking species of the genus for tropical growers, *Masdevallia sprucei* does not favour cool conditions. The small, but highly attractive flowers are brightly coloured and held just above the leaves. In cultivation, blooming usually occurs between mid-summer and early to mid-winter. *Masdevallia sprucei* once belonged to subgenus *Polyantha*, section *Alaticaula*, subsection *Alaticaula* (syn. genus *Alaticaulia*), a group characterised by their usually triquetrous (3-sided) inflorescences.**Figure 4.951 (above)** A pair of *Masdevallia sprucei* blooms (Grower: Marni Turkel).**Figure 4.952 (above)** The *Masdevallia sprucei* flower is brightly coloured and striking (Grower: Marni Turkel).

MASDEVALLIA***Masdevallia strobilii*** H.R.Sweet & Garay**Publication:** *Amer. Orchid Soc. Bull.* 35: 377 (1966)**Etymology:** Named to honour the late José Strobel of Cuenca, Ecuador, who collected and exported Ecuadorian orchids.**Morphology:** *Plant* 6–9 cm tall, clumping, branching, erect. *Ramicaul* 2–3 cm long. *Leaf* 4–6 cm long by 1.4–1.7 cm wide, elliptical, apex acute to obtuse, petiole 1–2 cm long. *Inflorescence* a raceme, peduncle 3–5 cm long, erect to suberect, slender, originating from low on the ramicaul. *Flower* 5–7.5 cm tall, single, sepaline tube campanulate, filled with glandular trichomes except for the glabrous, bright orange base, sepaline tails long, thin and basically straight. Flowers vary in the size, length and orientation of the sepaline tails (erect, reflexed, straight or somewhat curled), the length and shape of the trichomes, and in brilliance of colour.**Range, elevation and habitat:** Originally thought to be localised in one valley of the province of Zamora-Chinchipec, southeastern Ecuador, where it can be locally abundant, *Masdevallia strobilii* has now been found in Peru in the departments of Amazonas and San Martín (P. Bermudez, pers. comms., 2009). It occurs from 1400–2000 m elevation, growing epiphytically in moist, cool, montane cloud forest in fairly bright, open situations, and is often found on the lower branches of trees near water, on branches of low shrubs next to highways, and even on fence posts. Hawley & Teague (1976) frequently found this species nearly hidden in a thick cover of mosses and lichens, *Lepanthes* and other assorted pleurothallids. In nature, plants generally flower between March and June. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** Uniquely beautiful, *Masdevallia strobilii* can be one of the most floriferous in the genus, sometimes to the detriment of the plant, which has earned this species the reputation of blooming itself to death. Many growers remove most or all of the flowers once the first ones start to fade. Loved for its brilliant colours, unusual texture and wonderful fragrance, *M. strobilii* tends to bloom between early autumn and mid- to late winter, but occasionally at other times.**Figure 4.953 (above)** A crowd of *Masdevallia strobilii* blooms is truly breathtaking (Grower: Cindy Hill).**Figure 4.954 (above)** The *Masdevallia strobilii* flower is decorated with glandular trichomes (Grower: Ron Parsons).

MASDEVALLIA***Masdevallia triangularis* Lindl.****Publication:** *Orchid. Linden.*: 5 (1846)**Etymology:** From the Latin *triangularis* (triangular), referring to the shape of the sepals of the flower.**Morphology:** *Plant* 8–15 cm tall, clumping, branching, erect. *Ramicaul* 2–3 cm long. *Leaf* 6–12 cm long by 1.5–3 cm wide, elliptical, apex obtuse to rounded, petiole blackish, 2–5 cm long. *Inflorescence* a raceme, peduncle 6–12 cm long, slender, erect, originating from low on the ramicaul. *Flower* 6.5–8 cm tall, single, widely-spreading, small sepaline cup and long, straight, fairly thin tails. The flowers vary in size, somewhat in shape, depth of background colour, and in the size and number of fine spots.**Range, elevation and habitat:** *Masdevallia triangularis* is a widespread and relatively common species, occurring in northern and western Venezuela (states of Aragua, Carabobo, Distrito Federal, Lara, Mérida and Miranda), adjacent Colombia (department of Santander), and southeastern Ecuador (province of Loja). This species was also recently found in Peru (P. Bermudez, pers.comms., 2009). It occurs at elevations of 500–2600 m, growing as an epiphyte in moist, cool, montane cloud forest. Plants in Colombia have been recorded as flowering in June. This species is listed as data deficient on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* cool.**Comments:** This very popular species is found in many *Masdevallia* collections, and it has also been used extensively in the creation of some beautiful and successful hybrids. *Masdevallia triangularis* could only ever be confused with its close relative, *M. instar* Luer & Andreetta, but it can be differentiated from the latter species by a number of features; an apical, denticulate, acutely downturned lobe on the labellum; the lack of a secondary mentum (a “chin” at the base of the sepaline cup); and the obtuse angle between the dorsal sepal and lateral sepals (it is acute in *M. instar*). Both species belong to a closely related group of taxa once classified in section *Caudatae*, subgenus *Masdevallia*. Where populations of the two species overlap in nature, plants with intermediate features may be found. Plants may bloom in any month in cultivation.**Figure 4.955 (above)** *Masdevallia triangularis* produces large and distinctive blooms (Grower: John Leathers).**Figure 4.956 (above)** The magnificent *Masdevallia triangularis* has sired many hybrids (Grower: Mary Gerritsen).**Figure 4.957 (facing page)** Flowers of the related *Masdevallia instar* ‘Billy Boy’ are similar, but distinguishable according to the stated criteria (Grower: Mary Gerritsen).



MASDEVALLIA***Masdevallia trifurcata* Luer****Publication:** *Lindleyana* 9: 252 (1994)**Etymology:** From the Latin *trifurcatus* (three-forked), referring to the pointed apices of the three sepals.**Homotypic synonym:** *Luzama trifurcata* (Luer) Luer.**Morphology:** *Plant* 3.5–6 cm, clumping, branching, erect. *Ramicaul* 0.5–0.8 cm long, blackish. *Leaf* 2–4.5 cm long by 0.5–0.8 cm wide, elliptical, apex acute, petiole 1–1.5 cm long. *Inflorescence* a fairly congested raceme, peduncle 2.5–6 cm long, horizontal to pendent, slender, originating from low on the ramicaul. *Flower* 2.5–3 cm tall, up to 8 in number, successive, sepaline tube infundibuliform, sepaline tails relatively short, attenuate, acute.**Range, elevation and habitat:** *Masdevallia trifurcata* is found in southeastern Ecuador in the Cordillera del Condor (province of Zamora-Chinchipe) and also in Peru (P. Bermudez, pers. comms., 2009). It is relatively uncommon, and occurs at approximately 1500 m elevation, where it grows as an epiphyte in cool, moist, montane forest. This species is listed as endangered on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** The comely flowers of *Masdevallia trifurcata* are optimally displayed when grown on a mount, allowing the wiry spikes to dangle below the plant. When grown in a pot, the inflorescences tend to catch on the pot edge or bury themselves within the potting media. If mounted, ensure that the plant receives sufficient moisture and humidity. The authors have noted very little variation in the flowers apart from subtle colour differences. Plants may bloom at any time of year in cultivation. *Masdevallia trifurcata* belongs to a group of species once classified as subgenus *Pygmaea* section *Amaluzae* (syn. genus *Luzama*).**Figure 4.958 (above)** *Masdevallia trifurcata* produces lovely blooms of yellow (Grower: Marni Turkel).**Figure 4.959 (above)** Three pendent *Masdevallia trifurcata* flowers (Grower: Ron Parsons).

MASDEVALLIA***Masdevallia ventricularia* Rchb.f.****Publication:** *Otia Bot. Hamburg.*: 14 (1878)**Etymology:** From the Greek *ventriculus* (small belly), referring to the protruding bulge of the sepaline tube.**Heterotypic synonym:** *Masdevallia ventricularia* var. *brevicaudata* Kraenzl.

Morphology: Plant 6–11 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long. *Leaf* 5–9 cm long by 1.2–1.8 cm wide, narrowly elliptical, apex rounded, petiole 2.5–3.5 cm long. *Inflorescence* a raceme, peduncle 3.5–7 cm long, slender, erect to suberect, originating from low on the ramicaul. *Flower* 2.5–4 cm tall, single, sepaline tube erect, narrow, large, prominent, forward-jutting protrusion midway, distally constricted, aperture triangular, sepaline tails straight to slightly recurved, thin, usually yellowish, dorsal tail often shorter than the lateral tails, petals and lip hidden deep within the sepaline tube. Flowers vary in the colour of the of the sepaline tube exterior, from reddish brown to dark red, sometimes with yellow suffusion, in the colour of the aperture, which ranges from reddish to yellow, in the number and width of the stripes in the throat of the sepaline tube, and in the size, length and orientation of the sepaline tails.

Range, elevation and habitat: *Masdevallia ventricularia* is relatively widespread in central western Colombia, in the department of Antioquia, as well as in Ecuador (provinces of Carchi, Morona-Santiago and Pichincha). This species occurs at elevations of 1500–2300 m, where it grows as an epiphyte in moist, cool, montane cloud forest. Whilst not uncommon, this species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: This charming species, whilst not uncommon in collections, deserves to be grown more widely. *Masdevallia ventricularia* is often confused with *M. saltatrix* (see comments under that species), as well as with a form of *M. filaria*. Indeed, the form of the latter with dark reddish-brown flowers, a striped throat and a yellowish base to the sepaline tube was once regarded as the large form of *M. ventricularia*. However, the flowers of *M. filaria* are distinguished by their larger size, longer sepaline tails, and by the protrusion near to the base of the tube, which is akin to a belly in profile. By contrast, the protrusion in the sepaline tube of *M. ventricularia* is much closer to the apex, and more akin to a chest. In cultivation, flowers may appear in any month, most frequently from mid-autumn to early or mid-spring. As detailed under *M. saltatrix*, all three species (*M. filaria*, *M. saltatrix* and *M. ventricularia*) were once placed within section *Saltatrices* of subgenus *Masdevallia*.



Figure 4.960 (above) The charming, poised flower of *Masdevallia ventricularia* (Grower: Mary Gerritsen).



Figure 4.961 (above) *Masdevallia ventricularia* has slightly smaller flowers than its close relatives (Grower: John Leathers).



Figure 4.962 (above) *Masdevallia filaria* produces larger blooms with longer sepaline tails (Grower: Ron Parsons).

Figure 4.963 (below) In *Masdevallia filaria*, the sepaline tube protrusion is situated closer to the base, like a belly (Grower: Ron Parsons).

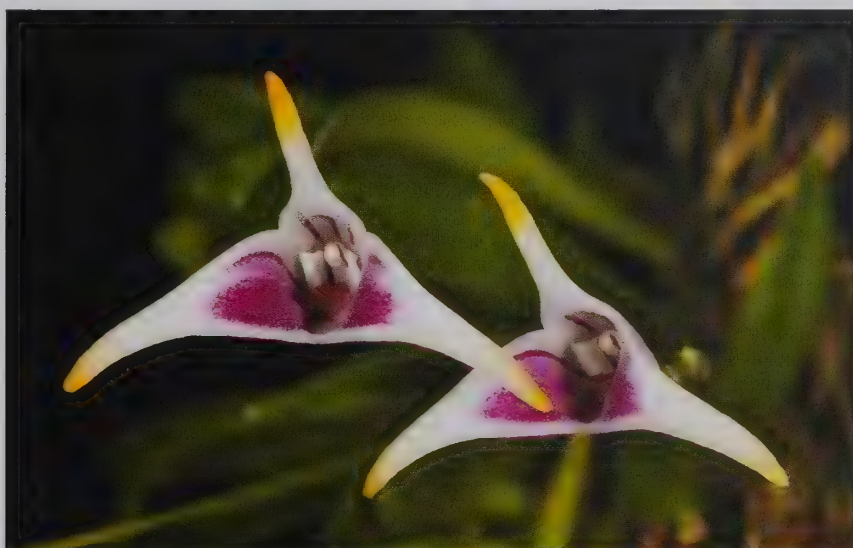
MASDEVALLIA***Masdevallia wendlandiana* Rchb.f.****Publication:** *Gard. Chron.*, III, 1: 174 (1887)**Etymology:** Reichenbach named this species in honour of Herr Oberhofgärtner Hermann Wendland, who cultivated this species at the Herrenhausen Botanical Garden in Hannover, Germany.**Homotypic synonym:** *Acinopetala wendlandiana* (Rchb.f.) Luer.**Heterotypic synonyms:** *Masdevallia rodrigueziana* Mansf., *Masdevallia ulei* Schltr., *Masdevallia yauaperyensis* Barb.Rodr.**Morphology:** *Plant* 6.5–13.5 cm, clumping, branching, erect. *Ramicaul* 0.5–1.5 cm long. *Leaf* 6–12 cm long by 0.7–1.2 cm wide, narrowly obovate, apex obtuse, petiole 1–2 cm long. *Inflorescence* a raceme, peduncle 4–7 cm long, slender, shorter than leaves, originating from low on the ramicaul. *Flower* single, 2–2.5 cm wide, sepaline tube narrow, campanulate, relatively deep, sepals tapering into medium-length, thickened tails. Variations include the length of inflorescences, the thickness and length of the sepaline tails, flower openness, and the intensity and amount of maroon to pinkish colouration (which may take the form of variably sized blotches to a few basal stripes) of the flowers.**Range, elevation and habitat:** One of the most widespread species in the genus, *Masdevallia wendlandiana* is found in Venezuela (states of Amazonas and Bolívar), Colombia (departments of Cauca and Vaupés), Ecuador (provinces of Napo and Sucumbíos), Peru (departments of Amazonas, Madre de Dios and San Martín), Bolivia (departments of La Paz and Pando) and Brazil (states of Amazonas and Bahia). It occurs at elevations of 100–800 m, growing epiphytically in lowland, tropical, wet forest or rainforest, sometimes on the trunks of large trees along rivers. In Peru, plants are found high in the canopy of wet forests up to 680 m elevation. In nature this species may bloom in any month. This species is relatively secure, and listed as least concern on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* warm to intermediate.**Comments:** This delightful, floriferous little species should be in every miniature orchid collection. Although the plants are warm-growing in nature, they seem to tolerate intermediate conditions as well. The authors find the forms with more extensive wine-red colour on the sepals to be particularly appealing, but the striped forms definitely have a seductive charm of their own. When in mass bloom, *Masdevallia wendlandiana* is among the most attractive of all the species that once belonged to the section *Minutae* of subgenus *Masdevallia* (syn. genus *Acinopetala*). The plants may bloom in any month in cultivation.

Figure 4.964 (above) The pretty, spreading flowers of *Masdevallia wendlandiana* deserve to feature in every miniatures collection (Grower: Elle Ronis).



Figure 4.965 (above) *Masdevallia wendlandiana* flowers have variable amounts of red or purple pigmentation on the sepals (Grower: Cindy Hill).
Figure 4.966 (above) *Masdevallia wendlandiana* may bloom profusely, putting on impressive displays. This form is strongly striped (Grower: Unknown).

MASDEVALLIA***Masdevallia* × *wubbenii* Luer**

Publication: *Amer. Orchid Soc. Bull.* 56: 1141 (1987)

Etymology: Named to honour the discoverer of this taxon, J.M. Wubben of the Netherlands.

Morphology: *Plant* 5–11 cm tall, clumping, branching, erect. *Ramicaul* 1–2 cm long, blackish. *Leaf* 4–9 cm long by 1.5–2.3 cm wide, elliptical, apex obtuse to rounded, petiole 1–3 cm long. *Inflorescence* a raceme, peduncle 6–10 cm long, erect, slender, originating from low on the ramicaul. *Flower* 7–7.5 cm tall, single, spreading widely, sepaline cup triangular, shallow, sepaline tails long, straight, relatively thin, somewhat recurved at the base, labellum hinged. Flowers do not vary significantly, but this may be due to a paucity of different clones in cultivation.

Range, elevation and habitat: *Masdevallia* × *wubbenii* is localised to the northern coastal mountains of Venezuela in the Distrito Federal and state of Aragua. It occurs at approximately 2200 m elevation in an area where the ranges of its parent taxa overlap. The type locality was described as forest located 30 km east of Colonia Tovar. The taxon grows epiphytically in cool, moist, montane cloud forest. No confirmed bloom-time records were available for this species. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: Natural hybridisation is one of the avenues for speciation, and this taxon represents a genetically stabilised population of plants that share the finest characteristics of both parents, *Masdevallia triangularis* and *M. wagneriana*. *Masdevallia* × *wubbenii* has the overall flower size and larger sepals of its *M. triangularis* parent, with soft, light yellowish background colouration and an overlay of red spotting and lines from *M. wagneriana*, making this a popular and truly beautiful flower. Cultivated plants tend to bloom between late fall and late spring, the flowers lasting several weeks or more.

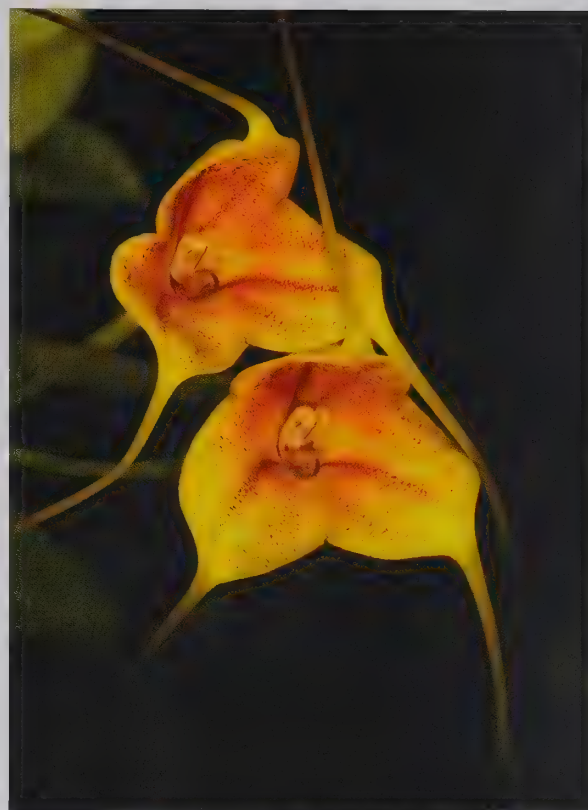


Figure 4.967 (above) A pair of *Masdevallia* × *wubbenii* blooms (Grower: Orchids for the People).

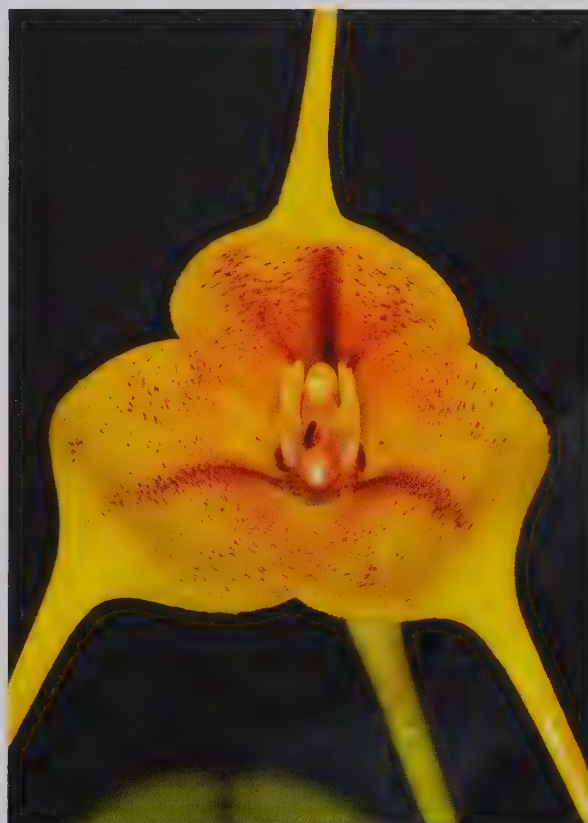


Figure 4.968 (above) The beautiful, bright flower of *Masdevallia* × *wubbenii* in detail (Grower: Gerardus Staal).

Figure 4.969 (overleaf) The flowers of *Masdevallia* × *wubbenii* are intermediate between those of its two parent taxa (Grower: Mary Gerritsen).



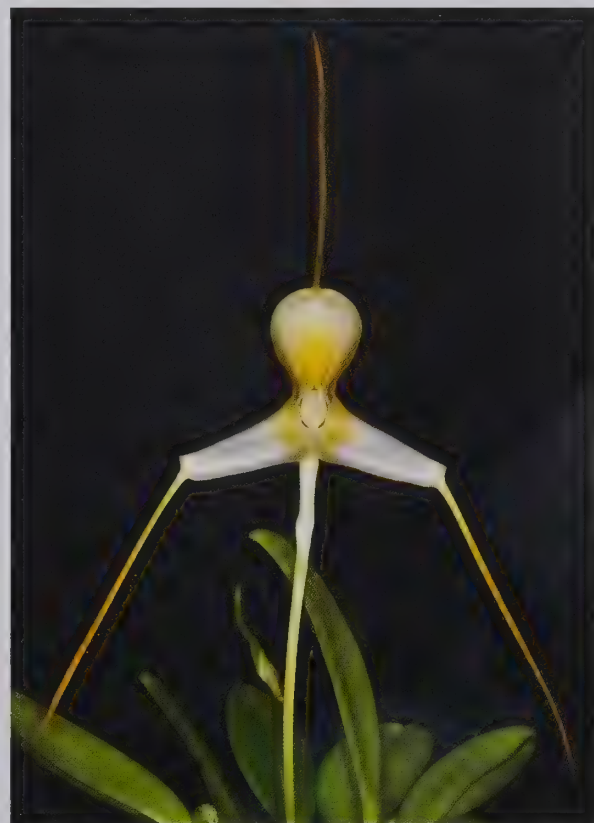
MASDEVALLIA***Masdevallia xanthina* Rchb.f.****Publication:** *Gard. Chron.*, n.s., 13: 681 (1880)**Etymology:** From the Greek *xanthos* (yellow), referring to the colour of the flowers.**Homotypic synonym:** *Masdevallia estradae* var. *xanthina* (Rchb.f.) A.H.Kent.**Heterotypic synonyms:** *Masdevallia pallida* (Woolward) Luer, *Masdevallia xanthina* subsp. *pallida* (Woolward) Luer, *Masdevallia xanthina* var. *pallida* Woolward.**Morphology:** Plant 4–10 cm tall, clumping, branching, erect. *Ramicaul* 1–2.5 cm, blackish. *Leaf* 3–7.5 cm long by 1.5–2.5 cm wide, broadly elliptical, apex obtuse to rounded, petiole 1–3 cm long. *Inflorescence* a raceme, 4–6 cm peduncle, slender, erect, originating from low on the ramicaul. *Flower* 7–15 cm tall, disproportionately large, single, widely spreading, dorsal sepal hooded, sepaline tube tiny, sepaline tails filiform, very long, straight. The flowers vary in size, somewhat in shape, length of tails and background colour (from yellow to white).**Range, elevation and habitat:** *Masdevallia xanthina* is widespread and relatively common in western Colombia (department of Antioquia, Cauca, Noriño and Norte de Santander), Ecuador (provinces of Azuay, Carchi, Imbabura, Morona-Santiago, Napo, Pastaza, Pichincha and Zamora-Chinchipec) and Peru (department of Amazonas). In Colombia, the species is only known from five unprotected, historical locales, and it could easily become vulnerable there. Plants occur from 1500–2800 m elevation, growing epiphytically in moist, cool, montane cloud forest. Plants have been recorded as blooming in November in Colombia. This species is listed as vulnerable on the IUCN Red List.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** A species that is easy to grow and bloom, *Masdevallia xanthina* is simply one of the most graceful and elegant in the genus. It has proportionately large flowers, sometimes nearly twice the height of the plant. The long, thread-thin tails are less likely to tangle when grown on a mount, but this plant will also do very well in a pot. The white-flowered variety, *M. xanthina* var. *pallida*, from Ecuador is more commonly seen in collections in the United States than the nominate variety. It is similar to several others in the alliance of species related to *Masdevallia caudata*, but appears to be relatively easy to identify by its prominent, very dark eye-spots at the base of the lateral sepals. An unusual characteristic of this species, at least in var. *pallida*, is its strange peppery fragrance. In cultivation, plants have been seen in flower in every season.**Figure 4.970 (above)** *Masdevallia xanthina* 'Clone A' (Grower: John Leathers).**Figure 4.971 (above)** *Masdevallia xanthina* 'Clone B' (Grower: John Leathers).



Figure 4.972 Fine detail of a pair of *Masdevallia xanthina* var. *pallida* blooms (Grower: Ron Parsons).



Maxillaria Ruiz & Pav.

Publication: Ruiz López, H. & Pavon, J. A., 1794, *Fl. Peruv. Prodr.*: 116

Subfamily: Epidendroideae
Tribe: Maxillarieae
Subtribe: Maxillariinae

Type species: *Maxillaria platypetala* Ruiz & Pav., 1798, *Syst. Veg. Fl. Peruv. Chil.*: 221.

Etymology: From the Latin *maxilla* (jaw), referring to the angle formed between the column and lip.

Profile: A large genus of approximately 300 epiphytic, lithophytic and occasionally terrestrial species from throughout the Neotropics. They range from Mexico through Central America and south through tropical South America and the Lesser Antilles. Until recently, this genus was much larger, but it has been divided into several smaller genera as a consequence of genetic studies.

General plant morphology: *Plant* sympodial, clumping to repent, erect to pendent. *Pseudobulb* present or lacking, with or without leafy bracts, leaf apical, unifoliate. *Leaf* sessile to petiolate, abscission layer of apical leaf projecting above pseudobulb in persistent stalk (phyllopodium), lamina variable in shape. *Inflorescence* single-flowered raceme, to several simultaneous, usually with bracts, floral bract sometimes concealing ovary, peduncle erect to suberect, lateral. *Flowers* solitary, resupinate or non-resupinate, campanulate to spreading, sepals and petals free, subsimilar, lip entire or three-lobed, articulate to usually conspicuous column foot, column straight to arching, rarely winged, pollinia 4, in two unequal pairs, ovary smooth, round in cross section.



Figure 4.973 (above) The elegant flower of the dwarfish *Maxillaria cacaoensis* (Grower: Andy's Orchids).

Figure 4.974 (facing page) *Maxillaria huancabambae* produces numerous small, bright blooms (Grower: Marni Turkel).



MAXILLARIA

Maxillaria huancabambae (Kraenzl.) C.Schweinf.

Publication: *Bot. Mus. Leaf.* 11: 277 (1945)

Etymology: Named for the province of Huancabamba, Peru, where it was discovered.

Homotypic synonyms: *Ornithidium huancabambae* Kraenzl., *Pityphyllum huancabambae* (Kraenzl.) Whitten.

Morphology: *Plant* 4–5 cm tall (individual growth), rhizome much branching, repent to pendent, covered with maroon sheaths. *Pseudobulb* tiny, 0.8 cm tall by 0.5 cm wide, ovoid, dark brown to purple, ribbed, covered with and fused to scarious sheaths, leaves apical, 2–3 in number. *Leaf* to 3.8 cm long (sometimes longer) by 1.1 cm wide, petiolate, linear, apex acute, apiculate, lamina semiterete, rigid, minutely papillose margins, carinate dorsally. *Inflorescence* a raceme, to 1 cm long, lateral from base of pseudobulb or from rhizome. *Flower* to 0.6 cm long, single, resupinate, not spreading widely, campanulate.

Range, elevation and habitat: *Maxillaria huancabambae* has been found in Ecuador, Peru (departments of Amazonas and Cajamarca) and Bolivia (departments of Cochabamba and La Paz,), where it grows at elevations of 1700–2900 m in cool, moist, montane cloud forests. It has been collected in flower in February in Peru and Bolivia. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles or possibly tree fern, using a little New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the creeping and pendent nature of the plant. *Temperature* cool-intermediate to cool. *Light* light to medium shade. *Watering* keep moist, well drained, not wet or soggy, may be allowed to dry briefly without harm. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: A beautiful little treasure with brilliant, yellow gumdrop-like flowers, *Maxillaria huancabambae* is uncommon in collections. Intolerant of pot cultivation for long, this species should be grown on a mount, placing it somewhat high up in a cool-intermediate to cool situation with high humidity. As recently as 2006, this taxon was included in the genus *Pityphyllum*, but in the turbulent world of taxonomy, this assignation did not last long. The plant is now back in the genus *Maxillaria*, although it does not fit well within the circumscription of the genus. The very desirable *M. huancabambae* usually flowers in the winter months in cultivation.



Figure 4.975 (above) The flowers of *Maxillaria huancabambae* are borne singly from the pseudobulbs and rhizomes (Grower: Steve Beckendorf).

Mediocalcar J.J.Sm.

Publication: Smith, J. J., 1900, *Bull. Inst. Bot. Buitenzorg* 7: 3

Subfamily: Epidendroideae

Tribe: Podochileae

Subtribe: Eriinae

Type Species: *Mediocalcar bicolor* J.J.Sm. = *Mediocalcar paradoxum* subsp. *robustum* (Schltr.) Schuit., 1997, *Orchid Monogr.* 8: 57.

Etymology: From the Latin *medius* (middle) and *calcar* (spur), referring to the excavate condition of the middle part of the lip.

Profile: A genus of nearly 20 epiphytic, lithophytic or occasionally terrestrial species found in the wet, evergreen, lower and upper montane forest and (rarely) coastal forest of New Guinea, Maluku (the Moluccas islands), Solomon Islands, Sulawesi, Santa Cruz Islands, Fiji, Samoa, Caroline Islands and Vanuatu. The majority of species occur at elevations of 700–3500 m, although some are found near sea level. They are believed to be pollinated by birds.

General plant morphology: *Plant* sympodial, sometimes mat-forming, trailing, erect to pendent, rooting at base of pseudobulbs, pseudobulbs clustered or repent. *Pseudobulb* small, leaves apical, generally 1–2 (to 6). *Leaf* sessile to shortly petiolate, leathery, sometimes fleshy. *Inflorescence* a raceme, terminal. *Flowers* one to two in number, waxy, sepaline tips often contrasting in colour with base, sepals connate for majority of length, fused into bell or barrel-shaped tube, usually constricting before aperture, segments dissimilar, petals free, lip unlobed to trilobed, saccate at base, sessile, column short, stout, wingless, with or without foot, pollinia 8.



Figure 4.976 (above) The bicoloured flower of *Mediocalcar bifolium*, one of the more available species in this genus (Grower: Unknown).

MEDIOCALCAR***Mediocalcar decoratum*** Schuit.**Publication:** *Blumea* 34: 167 (1989)**Etymology:** From the Latin *decora* (decorated), referring to the leaves.

Morphology: *Plant* individual growths to 2.5 cm tall, creeping, much branched, mat-forming, rooting profusely from base of pseudobulb, new pseudobulbs arising from near apex of previous growth, to 0.5 cm apart, rhizome to 30 cm or more in length. *Pseudobulb* to 2 cm tall by 0.3 cm wide, subcylindrical to fusiform, horizontal to obliquely erect, often suffused with reddish, leaves to 6 in number, apical. *Leaf* to 2.2 cm long by 0.3 cm wide, linear, straight to slightly arcuate, apex rounded to acute, lamina nearly triquetrous, spreading, succulent, fleshy, semi-flexible, dark green suffused with reddish pigment. *Inflorescence* a raceme, extremely abbreviated, to 3 (rarely more) simultaneous inflorescences, subterminal. *Flower* 0.6–0.8 cm long, single, resupinate, spreading to nodding, sepaline tube saccate, inflated basally, saccate ventrally, sepals connate for majority of length, abruptly constricted near apex, with flaring apices, petals and lip visible in aperture, pedicellate ovary, ribbed, glabrous. Sepals apices yellow, but varying at the base from light orange to nearly red.

Range, elevation and habitat: *Mediocalcar decoratum* is a locally common species that occurs in New Guinea at elevations of 900–2500 m. It grows epiphytically on moss-covered trees, usually on large branches or trunks of *Nothofagus*, *Castanopsis* or *Dacrydium*, or lithophytically on rocks, and is often found on road cuttings in the shady situations of wet and humid submontane and montane forest. It has been collected in bloom in February, but quite possibly flowers at other times.

Culture recommendations: *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. This species may also be potted in shallow bulb pans or baskets using a fine bark mix or moss. *Temperature* intermediate to cool. *Light* light to medium shade. *Watering* keep moist, well drained, not wet or soggy. It does not have a rest period. *Humidity* high. *Air movement* good to brisk. *Propagation* easily by division or seed. *Fertilise* at 1/4 strength weekly.

Comments: *Mediocalcar decoratum* is a species that deserves to be cultivated in all collections. The plant is extremely interesting, with a whorl of fleshy leaves at the apex of nearly horizontal, cylindrical pseudobulbs. Each new growth emerges near the apex of the previous pseudobulb, and the plant branches freely, quickly forming an attractive mat. The brightly coloured, cheerful flowers are often produced in profusion, being thus bicoloured, with a brilliant orange to orange-red base and flaring, golden-yellow tips. It is an easy plant to grow, adaptable, prolific, floriferous and readily propagated by division. Flowers are generally produced in early winter in cultivation, but occasional, less profuse blooming may occur at other times.



Figure 4.977 (above) *Mediocalcar decoratum* has bright, flaring flowers (Grower: White Oak Orchids).



Figure 4.978 (above) In time, *Mediocalcar decoratum* may form extensive floriferous mats (Grower: Hanging Gardens).

Meiracyllium Rchb.f.

Publication: Reichenbach, H. G., 1854, *Xenia Orchid.* 1: 12

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Meiracyllinae

Type Species: *Meiracyllium trinasutum* Rchb.f., 1854, *Xenia Orchid.* 1: 12.

Etymology: From the Greek *meriakyllion* (stripling, little fellow), referring to the miniature, creeping habit of the plants.

Profile: A genus of two miniature, creeping, repent epiphytic or lithophytic species from Mexico, Guatemala, El Salvador and Honduras. See the species entries for habitat information.

General plant morphology: *Plant* sympodial, prostrate, rhizome repent with growths at short intervals, branching freely, mat-forming, covered by short, scarious, imbricating sheaths. *Pseudobulb* absent, secondary stem short, unifoliate. *Leaf* sessile, oblong to ovate, prostrate to suberect, fleshy, leathery, often suffused with purple. *Inflorescence* a raceme, terminal. *Flowers* resupinate, lip entire, base saccate, attached to column base, column short, wingless, pollinia 8, in two unequal clusters of 4.



Figure 4.979 (above) A bright cluster of *Meiracyllium gemma* blooms putting on a fine display (Grower: Mary Gerritsen).

MEIRACYLLIUM

Meiracyllium gemma Rchb.f.

Publication: *Gard. Chron.* 1869: 988 (1869)

Etymology: From the Latin *gemma* (bud or jewel), referring to the flowers.

Morphology: *Plant* to 6 cm tall, prostrate to suberect. *Stem* minute, nearly obsolete. *Leaf* 1.5–5.5 cm long by 1.2–2.5 cm wide, tapering towards base, oblong-elliptic to oblong-obovate, apex obtuse to rounded, lamina suberect to spreading, thick, fleshy. *Inflorescence* a raceme, to 3.5 cm in length including peduncle, suberect. *Flower* 0.5–0.8 cm wide, to 7 in number, spreading, campanulate, base of lip shallowly gibbose-saccate, column slender at base, fragrant. Flowers vary in colour from pink-lilac to dark rose to magenta.

Range, elevation and habitat: *Meiracyllium gemma* is a common Mexican endemic that occurs in foothills of the ranges parallel to the Pacific coast. It is found in the states of Colima, Durango, Guerrero, Jalisco, Michoacán, Nayarit, Oaxaca and Sinaloa, and grows in warm dry oak forest, riparian forest, and tropical sub-deciduous forest. It may be found in full sun or shade, often near streams, at elevations ranging from 450–1500 m. This species may flower at any time, but mostly during the rainy season.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the creeping, mat-forming habit of the plant. *Temperature* intermediate, tolerating down to 7 °C (45 °F) at night during winter dormancy. *Light* bright diffused to light shade. *Watering* water frequently during late spring to early autumn, but allow to dry slightly between waterings, reducing watering frequency in the autumn. This species requires a dry rest in the winter except for occasional misting of the roots. *Humidity* high during growing season, average during dormancy. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, withholding fertiliser during dormancy.

Comments: Both species of *Meiracyllium* are desirable and well worth growing, and each has its own charm. *Meiracyllium gemma* may have more flowers than *M. trinasutum*, and although slightly smaller, the blooms are more open, have a lovely striped lip, and like *M. trinasutum*, have an enticing cinnamon fragrance. The plant is also attractive, with leathery, oblong leaves, growing on much abbreviated stems. *Meiracyllium gemma* is infrequently seen in cultivation, but is a perfect plant for growers of miniature orchids. Flowering generally occurs between spring and autumn in cultivation.

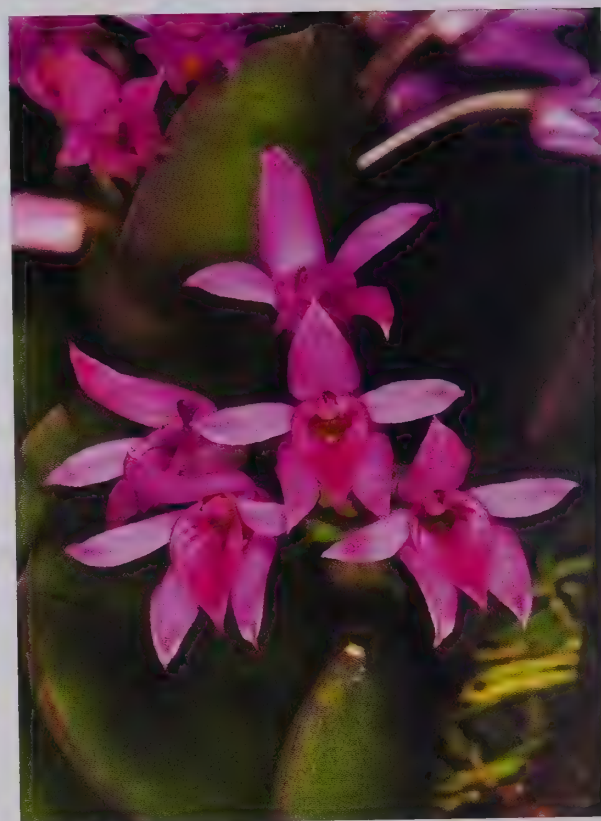


Figure 4.980 (above) The flowers and fleshy leaves of *Meiracyllium gemma* (Grower: Mary Gerritsen).



Figure 4.981 (above) *Meiracyllium gemma* flowers in detail (Grower: Mary Gerritsen).

MEIRACYLLIUM

Meiracyllium trinasutum Rchb.f.

Publication: *Xenia Orchid.* 1: 12 (1854)

Etymology: From the Latin *tri* (three) and *nasutus* (nose), referring to the three points along the outer margin of the lip.

Heterotypic synonym: *Meiracyllium wendlandii* Rchb.f.

Morphology: *Plant* to 6 cm tall, prostrate to suberect. *Stem* minute, nearly obsolete. *Leaf* 2.5–5 cm long by 1.5–3.5 cm wide, orbicular to broadly elliptic, apex rounded to obtuse, lamina generally spreading, more or less appressed to substrate, succulent, sometimes suffused with purple. *Inflorescence* a raceme, to 1 cm long, shorter than leaves, originating from base of leaf/apex of secondary stem. *Flower* 0.8–1.5 cm wide, to 4 in number, widely spreading, slightly campanulate, lip saccate, column with broad base, fragrant.

Range, elevation and habitat: Found in Mexico (state of Chiapas), Guatemala (departments of Chiquimula, Escuintla, Guatemala, Huehuetenango, Retalhuleu and Sacatepéquez), El Salvador (departments of Ahuachapán, Cuscatlán, La Libertad and Santa Ana), Honduras, Panama, and possibly Costa Rica, at elevations of 210–1700 m. This species grows on Pacific facing slopes as an epiphyte in relatively humid oak forests, warm, and seasonally dry mixed tropical forests, pine-oak woodlands and tropical deciduous or sub-deciduous forests and savannah. It is often found growing on *Licania arborea*, although it occasionally occurs as a lithophyte on calcareous and granitic rocks. Although it can bloom at any time, flowering most commonly occurs during the spring dry season.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the creeping, mat-forming habit of the plant. *Temperature* intermediate, tolerating nighttime lows of 7 °C (45 °F) during winter dormancy. *Light* bright diffused to light shade. *Watering* water frequently during late spring to early autumn, but allow to dry slightly between waterings, reducing watering frequency in the autumn. This species requires a dry rest in the winter except for occasional misting of the roots. *Humidity* high during growing season, average during dormancy. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, withholding fertiliser during dormancy.

Comments: Remarkably redolent of cinnamon when in bloom, *Meiracyllium trinasutum* is an exceptional species. The creeping plant, with its ovate to nearly round leaves, is quite handsome, but it is the gorgeous, pinkish purple flowers with their crisp stance and three-pronged pouch-like lip that are truly enchanting. There is even a pure white-flowered form that is rather rare. Flowering usually occurs during mid-spring to mid-summer in cultivation.



Figure 4.982 (above) *Meiracyllium trinasutum* growing in a dry forest on karst limestone, near Nenton, Department of Huehuetenango, Guatemala. Elevation approximately 800 m (Photo: Gary Yong Gee).



Figure 4.983 (above) *Meiracyllium trinasutum* flowers in detail (Grower: White Oak Orchids).



Figure 4.984 (above) The pretty flowers of *Meiracyllium trinasutum* f. *alba* in detail (Grower: Howard Gunn).
Figure 4.985 (below) A trio of *Meiracyllium trinasutum* flowers in detail (Grower: Howard Gunn).

Microsaccus Blume

Publication: Blume, K. L. von, 1825, *Bijdr.*: 367

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Microsaccus javensis* Blume, 1825, *Bijdr.*: 367.

Etymology: From the Greek *micro* (small) and *saccus* (bag), in reference to the lip.

Profile: A genus of 13 species found in Thailand, Myanmar, Cambodia, Vietnam, Malaysia, Java, Sumatra, Borneo and the Philippines. *Plant* monopodial, epiphytic, branching, suberect to pendent, leaves distichous, tightly imbricating, many in number. *Leaf* fleshy, leathery, often rugose. *Inflorescence* short, lateral, axillary. *Flowers* 2 in number, mainly white, lip with large spur, column short, lacking foot, pollinia 4.



Figure 4.986 (above) The pristine, white little blooms of an unidentified *Microsaccus* sp. (Grower: Jacob Knecht).

MICROSACCUS

Microsaccus griffithii (E.C.Parish & Rchb.f.) Seidenf.

Publication: *Opera Bot.* 95: 25 (1988)

Etymology: Named in honour of William Griffith (1810–1845), English botanist, collector, and superintendent of Calcutta Botanic Garden, who discovered this species.

Homotypic synonyms: *Saccolabium griffithii* E.C.Parish & Rchb.f., *Gastrochilus griffithii* (E.C.Parish & Rchb.f.) Kuntze.

Heterotypic synonyms: *Microsaccus brevifolius* J.J.Sm.

Morphology: Plant to 10 cm long (mature plants rarely to 17 cm) and 1–2 cm wide, initially ascending to erect, descending to pendent with age, stems slender, branching, apically ascending. Leaf to 1 cm long by 0.5 cm wide, laterally compressed, ovate, apex obtuse to acute, lamina bifacial, fleshy, rigid, rugose, dark green. Inflorescence a raceme, much abbreviated, 1–4 (occasionally more) simultaneous inflorescences along successive axils, often distal. Flower to 0.6 cm in diameter, to 2 in number, resupinate, simultaneous, spreading, campanulate, spur very short, bilobed.

Range, elevation and habitat: *Microsaccus griffithii* is a wide-ranging species, occurring in Thailand, Myanmar, Cambodia, south Vietnam, Peninsular Malaysia, Singapore, Sumatra, Java, Borneo and the Philippines (Davao province of Mindanao). It is found growing as an epiphyte, and also as a lithophyte on limestone, in tropical, low montane forest and open lowland forest near rivers and mangroves at elevations between sea level and 700 m, except on Borneo. On that island, it has been found at significantly higher elevations, between 1100–2000 m, where it grows in hill and montane forest, sometimes on ultramafic soils. This species blooms during the summer months in nature. In Vietnam, this species is uncommon. The conservation status of *Microsaccus griffithii* is unknown, but it is likely to be secure in much of its range.

Culture recommendations: Substrate mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture due to the elongate, pendent nature of the plant. It may be possible to cultivate plants in pots, but the authors have not seen it grown in this manner. Temperature warm to intermediate. Light light to medium shade. Watering water frequently, but allow to dry briefly between waterings. Humidity high. Air movement good to brisk. Propagation occasionally by division or seed. Fertilise at 1/4 to 1/2 strength weekly.

Comments: Of the two species of *Microsaccus* discussed here, plants of *M. griffithii* are more delicate in appearance. It is quite an attractive plant, with long, narrow stems that are laterally flattened, and hard, leathery, braided leaves. Somewhat unusually for a vandaceous orchid, it branches



Figure 4.987 (above) The flowers of *Microsaccus griffithii* are borne on abbreviated inflorescences (Grower: J & L Orchids).



Figure 4.988 (above) *Microsaccus griffithii* plants are attractive in their own right (Grower: Jacob Knecht).

MICROSACCUS

freely, eventually forming fine clumps. The growths start out growing upwards, but as they elongate, the weight of the growth causes the plant to descend; nonetheless, the apical growing point usually turns upward. When in bloom, there can be several simultaneous inflorescences, and the small, bright white flowers are borne on extremely short peduncles held close to the plant. *Microsaccus griffithii* may still be found in some collections under the label *M. brevifolius*. This species blooms between mid-summer and late autumn in cultivation, but occasionally flowers randomly at other times.



Figure 4.989 (above) Detail of the flowers and fine, rugose leaves of *Microsaccus griffithii* (Grower: J & L Orchids).

MICROSACCUS

Microsaccus wenzelii Ames

Publication: *Orchidaceae* 5: 257 (1915)

Etymology: Named for the botanist, Chester A. Wenzel (1882–1929), a specialist in lichens, who collected this and many other species of orchids in the Philippines, with many named in his honour.

Morphology: *Plant* to 11.5 cm long, branching from base, suberect, but pendent with age. *Leaf* to 2 cm long by 0.5 cm wide, sessile, laterally compressed, elliptic-oblong, apex obtuse, apiculate, lamina dorsally sulcate, spreading, leathery, fleshy, rigid, shallowly rugose. *Inflorescence* a raceme, abbreviate, 1 to several simultaneous inflorescences from successive axils, often distal. *Flower* to 0.5 cm tall, 1, rarely 2 in number, simultaneous, resupinate, not spreading widely, campanulate, spur short, saccate.

Range, elevation and habitat: *Microsaccus wenzelii* is endemic to the Philippines, on the islands of Leyte, Luzon (provinces of Nueva Ecija, Nueva Viscaya and Quezon) and Mindanao (province of Surigao) at elevations between 60–1200 m. It grows as an epiphyte on the mossy branches and trunks of trees in low to mid-elevation wet tropical forest. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using a little New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture due to the elongate, pendent nature of the plant. *Temperature* warm to intermediate. *Light* light to medium shade. *Watering* water frequently, but allow to dry briefly between waterings. *Humidity* high. *Air movement* good to brisk. *Propagation* occasionally by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: *Microsaccus wenzelii*, like its relative *M. griffithii*, is a handsome and desirable plant, although larger and somewhat more coarse looking. The flowers are larger, and blooms form on very short inflorescences at the leaf axils. Both species should be grown mounted due to the pendent plant habit, although small, single plants may be started in pots. Flowering in cultivation often occurs during the winter months.



Figure 4.990 (above) A pair of *Microsaccus wenzelii* flowers (Grower: Marni Turkel).



Figure 4.991 (above) *Microsaccus wenzelii* flowers emerge from successive axils (Grower: Brad Cotten).

Monosepalum Schltr.

Publication: Schlechter, F. R. R., 1913, *Repert. Spec. Nov. Regni Veg. Beih.* 1: 682

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Bulbophyllinae

Type species: *Monosepalum dischorens* Schltr., 1913, *Repert. Spec. Nov. Regni Veg. Beih.* 1: 895.

Etymology: From the Greek *mono* (one) and *sepal* (sepal), referring to the connate condition of the sepals which are united nearly to the apex.

Morphology: *Plant* sympodial, epiphytic, erect, pseudobulbs clustered to repent. *Pseudobulb* ovoid, angled, unifoliate. *Leaf* subpetiolate, elliptic, leathery. *Inflorescence* a raceme. *Flowers* solitary, nodding, base of lateral sepals connate with that of dorsal sepal, tubular, petals free, lip unlobed, hinged to column, column short, with incurved foot, pollinia 2.

Comments: The World Checklist of Selected *Plant Families* (Kew) has placed most of the species originally attributed to *Monosepalum* in *Bulbophyllum*. At the time of publication, the checklist states that *Monosepalum dischorens* is an unplaced name.



Figure 4.992 (above) This close-up, partial profile shows the strange connation of the sepals of *Monosepalum dischorens* (Grower: Marni Turkel).

MONOSEPALUM***Monosepalum dischorens* Schltr.****Publication:** *Repert. Spec. Nov. Regni Veg. Beih.* 1: 895 (1913)**Etymology:** From the Dischore Mountain Range, in the Morobe District of Papua New Guinea, where this species was discovered.**Morphology:** *Plant* 5–10 cm tall (individual growth), creeping, branching, pseudobulbs closely set to 1 cm apart along rhizome. *Pseudobulb* to 2 cm tall by 1 cm wide, conical, slightly compressed, unifoliate. *Leaf* to 7.5 cm long by 3 cm wide, shortly petiolate, conduplicate at base, ovate, apex obtuse with small apicule, lamina dorsally dark green with extremely fine whitish longitudinal streaks, ventrally reddish purple. *Inflorescence* a raceme, to 25 cm in length, descending to pendent, slender, borne laterally from base of pseudobulb. *Flower* 5–6.5 cm long, single, resupinate, nodding, lateral sepals connate for most of length, bifurcating into short tails apically, dorsal sepal tiny, petals and lip minute. The spotting on the flowers varies in size and density.**Range, elevation and habitat:** *Monosepalum dischorens* is endemic to New Guinea at elevations of approximately 1300 m. It grows as an epiphyte in wet and humid montane forests. There is a bloom-time record for June in nature, but it is highly likely that *M. dischorens* can flower at other times of year. Conservation status unknown.**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species can also be grown in small pots or baskets using moss or a fine bark mix, but it is probably best grown mounted or in baskets due to the decumbent inflorescence and flower. *Temperature* intermediate to intermediate-cool. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.**Comments:** A most unusual species, the strange, striking flowers of *Monosepalum dischorens* consist of almost nothing but lateral sepals. The dorsal sepal is barely recognisable as such, and finding the petals and lips requires a careful look. The leaves are subtly beautiful, with the upper surface covered in fine dashes and streaks of white, and the underside flushed reddish-purple. It is uncommon in collections, but available in the trade. Flowering occurs randomly throughout the year in cultivation.**Figure 4.993 (above)** *Monosepalum dischorens* has remarkable, striking flowers of fine form (Grower: Marni Turkel).**Figure 4.994 (above)** The unusually marked leaf of *Monosepalum dischorens* (Grower: Marni Turkel).

Mystacidium Lindl.

Publication: Lindley, J., 1837, *Companion Bot. Mag.* 2: 205

Subfamily: Epidendroideae
Tribe: Vandeae
Subtribe: Aerangidinae

Type species: *Mystacidium filicorne* Lindl., 1837, *Companion Bot. Mag.* 2: 206, nom. illeg. = *Mystacidium capense* (L.f.) Schltr., 1914, *Orchideen*: 597.

Etymology: From the Greek *mystax* (moustache) with suffix *-idium* (resembling), probably in reference to the lobes of the papillose rostellum.

Profile: A small genus of approximately 10 epiphytic species found in Tanzania, Malawi, Mozambique, Zambia, Zimbabwe and South Africa (Cape Provinces, KwaZulu-Natal, Northern Provinces and Swaziland).

General plant morphology: *Plant* monopodial, dwarf to miniature, stems short, covered by imbricate sheathing leaf bases, rooting at base, leaves one to many, distichous, often deciduous. *Leaf* linear, articulated to the sheathing leaf bases, apex unequally bilobed, fleshy or coriaceous. *Inflorescence* a raceme, short, slender, wiry, to 4 simultaneous inflorescences (from separate axils), lateral/axillary. *Flowers* few to several in number, simultaneous, resupinate, sepals and petals free, sub-equal, lip entire or 3-lobed near base, spurred, column short, stout, pollinia 2.



Figure 4.995 (above) The dwarf *Mystacidium capense* is the most popular species in the genus (Grower: White Oak Orchids).



Figure 4.996 (above) The graceful flowers of *Mystacidium capense* have long, elegant spurs (Grower: Judy Carney).

MYSTACIDIUM

Mystacidium braybonae Summerh.

Publication: *Kew Bull.* 4: 442 (1949)

Etymology: Named in honour of Mrs. H. Braybon, 20th century South African orchid enthusiast.

Morphology: *Plant* 4–10 cm wide, stem 0.5–2 cm tall, leaves usually single, often seasonally deciduous, roots many, large. *Leaf* 2–6 cm long by 0.5–1.5 cm wide, elliptic or ligulate, dark green. *Inflorescence* a raceme, 2–5 cm long, pendent, slender, slightly fractiflex. *Flower* 1–2 cm wide, 2–10 in number, simultaneous, spreading, campanulate, spur 1.4–2.5 cm in length.

Range, elevation and habitat: *Mystacidium braybonae* occurs in the Zoutpansberg (Soutpansberg) Mountains in the province of Limpopo of northern South Africa. This species grows epiphytically on *Ficus* in humid, shady situations in montane forests. Flowering in nature occurs between November and January. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots, depending on amount of humidity. This species is not well-suited to potted culture due to its long roots, which require good air circulation, and their dislike of constant moisture. When selecting a mount, bear in mind that the roots can become quite long. *Temperature* intermediate, but cooler during winter dormancy. *Light* medium to heavy shade. *Watering* during the growing season, water frequently, but allow to approach dryness before watering again; do not keep plants wet. This species should be kept drier after flowering. It requires a dry winter rest, but the roots are best misted every 7–10 days to prevent desiccation. During the dry rest period, the leaves are often lost. *Humidity* high during growing season, average during rest period. *Air movement* good. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, but it is best to omit fertiliser during the winter months.

Comments: This small species has pristine, sparkling white flowers that are similar to those of its popular, larger cousin, *Mystacidium capense* (L.f) Schltr., though slightly smaller and more cupped. *Mystacidium braybonae* can be a prolific bloomer, nearly obscuring the plant, and flowers in cultivation between mid-spring and early summer. The blossoms have a wonderful nocturnal fragrance, adding to its desirability.



Figure 4.997 (above) Flowers of *Mystacidium braybonae* may number up to ten per inflorescence (Grower: Marni Turkel).



Figure 4.998 (above) The flowers of *Mystacidium braybonae* in detail (Grower: Marni Turkel).



Figure 4.999 (above) A cascade of pretty *Mystacidium braybonae* blooms virtually cover their mount (Photo: Eric la Croix).
Figure 4.1000 (below) A mounted *Mystacidium braybonae* plant in full bloom (Grower: Marni Turkel).

MYSTACIDIUM

Mystacidium gracile Harv.

Publication: *Thes. Cap.* 2: 48 (1863)

Etymology: From the Latin *gracilis* (graceful, slender), probably in reference to the delicate flowers.

Homotypic synonym: *Aeranthus gracilis* (Harv.) Rchb.f.

Morphology: Plant 2–6 cm wide, stem to 2 cm long, often leafless, roots prolific, fine, greyish in colour, many hanging free. *Leaf* rarely produced, 1–3.5 cm long by 0.3 cm wide, shortly petiolate, oblanceolate to elliptic to linear, apex obtuse, lamina bluish-green. *Inflorescence* a loose raceme, 3–10 cm long, often 2–4 simultaneous inflorescences, spreading to pendent. *Flower* 0.8–1.4 cm wide excluding spur, 4–12 in number, widely spreading, sepaline tube campanulate, spur slender, proportionately long, straight to decurved, to 2.5 cm in length.

Range, elevation and habitat: *Mystacidium gracile* grows as an epiphyte on the trunks and main branches of trees in heavily shaded situations with high humidity. It occurs in montane evergreen and temperate forest in South Africa (provinces of Eastern Cape, KwaZulu-Natal, Mpumalanga and Northern Province) and Zimbabwe, at elevations of 1600–1800 m. This species is often leafless for much of the year, and the long, prolific roots are photosynthetic. Flowering occurs between June and October in nature. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots, depending on relative humidity. This species is not suited to potted culture as the roots require good air circulation and need to dry slightly between waterings. *Temperature* intermediate, but slightly cooler in the winter months. *Light* medium to heavy shade. *Watering* water frequently, but allow to dry slightly between waterings. In winter, reduce watering frequency. *Humidity* high. *Air movement* good. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, but it is best to omit fertiliser during the winter months.

Comments: This lovely, graceful, green-flowered species is a wonderful addition to any collection. The plant is often deciduous in nature for much of the year, but tends to retain its leaves longer in cultivation due to the more prevalent water. Flowers can be prolific, with up to four simultaneous spikes, each with several blooms that emit a delicious, spicy fragrance. In cultivation, flowers tend to appear between late winter and mid-spring. *Mystacidium gracile* may be confused with the related species *M. flanaganii* when the former is in leaf. However, the flowers of *M. flanaganii* are paler, smaller, and appear earlier, usually in December and January.



Figure 4.1001 (above) The green flowered *Mystacidium gracile* in full bloom (Grower: Marni Turkel).



Figure 4.1002 (above) *Mystacidium gracile* is usually leafless except when water is prevalent (Grower: Andy's Orchids).

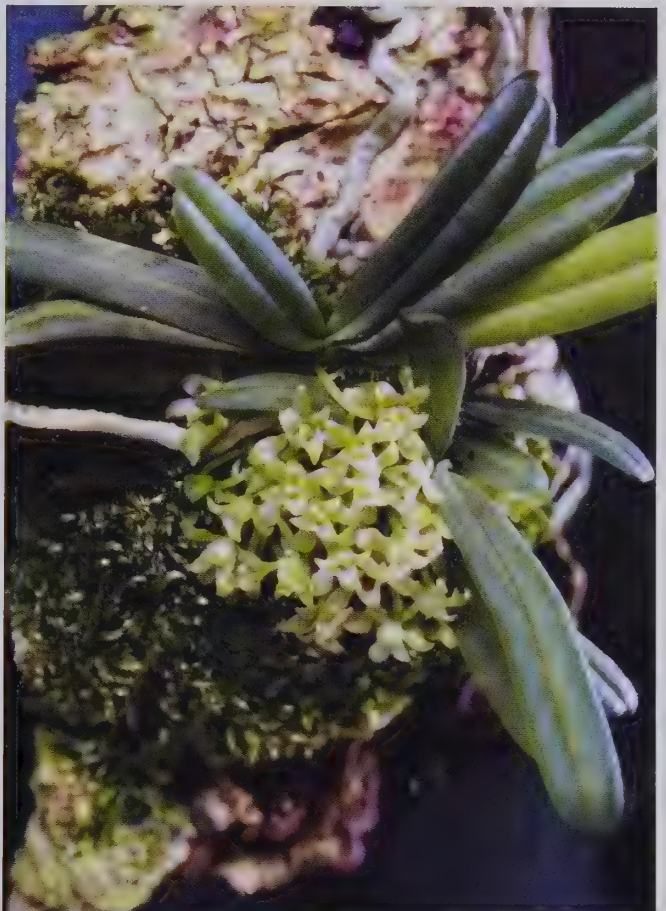


Figure 4.1003 (above) Flowers of the related taxon, *Mystacidium* *flanagani* (Grower: Ginette Sanchou).

Figure 4.1004 (below) *Mystacidium tanyangikense* in habitat, Zomba, Malawi (Photo: Mike Duncan).

Figure 4.1005 (above) *Mystacidium pusillum* growing from a vertical mount (Grower: White Oak Orchids).

Figure 4.1006 (below) The dense flower head of a mounted *Mystacidium aliciae* plant (Photo: Eric la Croix).

MYSTACIDIUM***Mystacidium venosum*** Harv. ex Rolfe**Publication:** *Fl. Cap.* 5(3): 79 (1912)**Etymology:** From the Latin *venosus* (veined), in reference to the leaves.**Heterotypic synonym:** *Mystacidium taeniophylloides* Kraenzl.

Morphology: *Plant* 5–13 cm wide, usually single, short stem, leaves 2–5 in number, may be seasonally deciduous, roots numerous, relatively stout. *Leaf* 1.5–6.5 cm long by 0.6–1.1 cm wide, elliptic to oblanceolate, apex obtuse, lamina darkly veined, fleshy. *Inflorescence* a dense raceme, 2–9 cm long, usually several simultaneous, borne laterally from stem below the leaves. *Flower* 1.5–2 cm wide, 4–10 in number, spreading, campanulate, spur slender, proportionately long, decurved, 2–5 cm long, sometimes blooming while leafless.

Range, elevation and habitat: *Mystacidium venosum* is found in South Africa, in the provinces of Eastern Cape, KwaZulu-Natal, Mpumalanga and Northern Province, as well as in Swaziland and Mozambique, at elevations up to 700 m. It grows epiphytically in a variety of habitats that include scrub, woodland, riparian forest, montane and coastal mountain forest, where it is found in both shady and exposed situations. *Mystacidium venosum* is often found growing in large colonies on the substantial branches of a variety of host trees, and blooms between April and July in nature. Plants frequently lose their leaves in the cooler, drier winter months. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture as the long roots require good air circulation and need to dry slightly between waterings. *Temperature* intermediate, but cooler in the winter months. *Light* light shade to medium shade. *Watering* water frequently during the growing season, allowing plants to approach dryness before watering again, but do not keep wet. This species should be kept drier after flowering, particularly if the leaves are lost. It needs a drier winter rest, but the roots should be misted every 7–10 days to prevent desiccation. *Humidity* high. *Air movement* good. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, but it is best to omit fertiliser during the winter months.

Comments: *Mystacidium venosum* is an uncommon collector's item. It is quite similar to its larger and more well-known cousin, *M. capense*, both species bearing lovely, white, nocturnally fragrant flowers. However, *M. venosum* is more difficult to obtain. Plants in nature often lose their leaves during the winter months, and may do so in cultivation. It is important to understand this leafless state; the plant is not dead, merely resting, and requires much less moisture at this time. The floriferous *M. venosum* blooms during autumn and winter in cultivation.



Figure 4.1007 (above) A veritable cascade of mesmerising *Mystacidium venosum* flowers (Photo: Eric la Croix).



Figure 4.1008 (above) *Mystacidium venosum* blooms bear a graceful spur (Grower: Marni Turkel).

Neobathiea Schltr.

Publication: Schlechter, F. R. R., 1925, *Repert. Spec. Nov. Regni Veg. Beih.* 33: 369

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Angraecinae

Type species: *Neobathiea perrieri* (Schltr.) Schltr., 1925, *Repert. Spec. Nov. Regni Veg. Beih.* 33: 371.

Etymology: Named for H. Perrier de la Bathie (1873–1958), a French botanist who specialised in the plants of Madagascar and authored several books on the plants of that country. The prefix *Neo-* (new) was added because the earlier name of *Bathiea* was illegitimate.

Homotypic synonym: *Bathiea* Schltr.

Profile: A small genus of 5 epiphytic or rarely lithophytic species occurring in Madagascar and the Comoros Islands.

General plant morphology: *Plant* monopodial, small to medium-sized, usually single, occasionally branching at base, stems short, some vine-like, leaves alternate, distichous, few in number, leaf bases imbricate. *Leaf* strap shaped to elliptic, apex obliquely bilobed, leathery. *Inflorescence* a raceme, lateral, axillary. *Flowers* one to several, resupinate, sepals and petals free, subsimilar, spreading, flower colour white, green or occasionally yellow, lip larger than other segments, entire or trilobed, spur long and slender with a funnel-shaped throat, pollinia 2.



Figure 4.1009 (above) *Neobathiea keraudrenae*, a close relative of *N. grandidierana*, is rare in cultivation (Grower: Botanica).

NEOBATHIEA

Neobathiea grandidierana (Rchb.f.) Garay

Publication: *Bot. Mus. Leafl.* 23: 188 (1972)

Etymology: Named after Alfred Grandidier (1836–1921), French naturalist and explorer, who was devoted to the study of Madagascar. He was one of the authors of *L'Histoire physique, naturelle et politique de Madagascar*, which eventually ran to 40 volumes, the final ones being published posthumously. Grandidier was elected to the French Academy of Sciences, and was president of the French Geographical Society from 1901 to 1905.

Homotypic synonyms: *Aeranthus grandidierana* Rchb.f., *Angraecum grandidieranum* (Rchb.f.) Carrière, *Mystacidium grandidieranum* (Rchb.f.) T.Durand & Schinz.

Heterotypic synonym: *Neobathiea filicornu* Schltr.

Morphology: *Plant* 10–12 cm wide, stem 6–15 cm tall, occasionally larger in cultivation, usually less than 6 cm in nature, leaves 4–6 in number. *Leaf* 4–6 cm long by 0.8–2 cm wide, linear to elliptic to oblanceolate, barely, but unequally bilobed at apex. *Inflorescence* a raceme, peduncle 2–4 cm in length, suberect to descending, arcuate. *Flower* 2–4.5 cm tall, to 2 in number, whitish-green to pale green, lip unlobed, spur 12–15 cm in length.

Range, elevation and habitat: *Neobathiea grandidierana* occurs in the central highlands of Madagascar in the provinces of Mahajanga and Toamasina, where it is found at elevations ranging from 772–2000 m. It grows as an epiphyte on lichen-rich twigs and branches in humid, evergreen forest. It is subjected to a long, annual dry season, but with frequent low clouds and dew, particularly at night. This species is also found in the Comoros Islands (Anjouan and Grande Comore) on west-facing slopes. *Neobathiea grandidierana* blooms between September and December in nature. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species can also be grown potted using a fast-draining mix. *Temperature* intermediate. *Light* medium shade. *Watering* water frequently during the growing season, allowing to approach dryness before watering again, do not keep wet. This species should be kept drier in the winter, but it is best to mist the roots every few days. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, but it is best to omit fertiliser during the winter months.

Comments: *Neobathiea grandidierana*, long known as *N. filicornu*, has always been uncommon in cultivation. The bicoloured flowers are particularly



Figure 4.1010 (above) *Neobathiea grandidierana* flowers have exceptionally long spurs (Grower: Marni Turkel).



Figure 4.1011 (above) *Neobathiea grandidierana* photographed in situ on the island of Madagascar (Photo: Johan Hermans).

NEOBATHIEA

striking, with their exotic shape and long nectary; interestingly, they are initially green in colour, then change to white with green as they age. This species grows noticeably larger in cultivation than in nature, an instance where more frequent watering and regular feeding boosts the size of the plant. Flowering usually occurs in the spring in cultivation, but sometimes also in later summer and early autumn.



Figure 4.1012 (above) *Neobathiea grandidierana* produces elegant, streamlined flowers (Grower: Cindy Hill).

NEOBATHIEA

Neobathiea perrieri (Schltr.) Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 33: 371 (1925)

Etymology: Named for H. Perrier de la Bathie (1873–1958), a French botanist who studied and wrote about the orchids of Madagascar.

Homotypic synonyms: *Aeranthes perrieri* Schltr., *Bathiea perrieri* (Schltr.) Schltr.

Morphology: *Plant* to 14 cm wide, stem short to 5 cm tall, leaves 3–6 in number. *Leaf* 3.5–7.0 cm long by 1–2 cm wide, oblong-spathulate, apex unequally bilobed, lamina dark green, glossy, margins undulate. *Inflorescence* a raceme, 5–12 cm in length, erect to descending. *Flower* 3–3.5 cm tall, 1–3 in number, simultaneous, spreading widely, segments slightly to strongly reflexed, subsimilar, lip three-lobed, spur 7–12 cm long, first ascending then descending. Flowers vary from off-white to green and white.

Range, elevation and habitat: *Neobathiea perrieri* grows as an epiphyte in dry areas on shrubs in evergreen forest, semi-deciduous forest and dry forest, sometimes on calcareous soils, in northern and northwestern Madagascar. It is found at elevations from near sea level to 350 m. This species undergoes a long dry season, but with frequent dews and low clouds, especially at night. It blooms in nature during the rainy season between January and June. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species can also be grown potted using a fast-draining mix. *Temperature* intermediate. *Light* medium shade. *Watering* water frequently during the growing season, allow to approach dryness before watering again. Do not keep wet. This species should be kept drier in the winter, but it is best to mist the roots every few days. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, but it is best to omit fertiliser during the winter months.

Comments: *Neobathiea perrieri* bears striking flowers of an elegant design. Even more rare in cultivation than *N. grandidierana*, it has a distinctly different flower and more complex lip. Angraecoids are very specialised and highly evolved plants, and the blossom of *N. perrieri* certainly prompts thoughts about the nature of the long-tongued nocturnal moth that surely pollinates it! An interesting feature of both *N. perrieri* and *N. grandidierana* is the large, funnel-shaped opening to the spur. *Neobathiea perrieri* tends to bloom from late summer in cultivation.

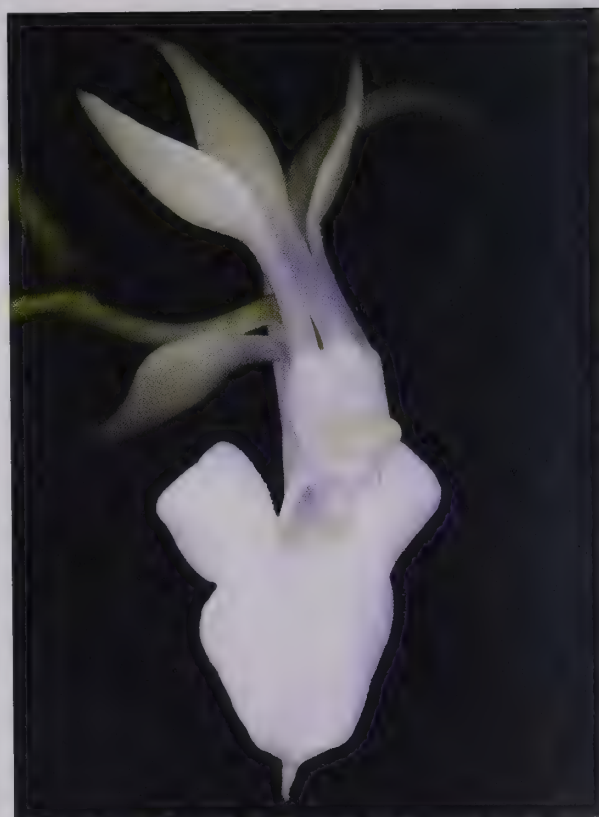


Figure 4.1013 (above) The beautiful flower of the rarely cultivated *Neobathiea perrieri* (Grower: Petite Plaisance).



Figure 4.1014 (above) The elegant stance of *Neobathiea perrieri* is most apparent in profile (Grower: Petite Plaisance).

Neofinetia Hu

Publication: Hu, H. H., 1925, *Rhodora* 27: 107

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Neofinetia falcata* (Thunb.) Hu, 1925, *Rhodora* 27: 107.

Etymology: Named for Eugène-Achille Finet (1862–1913), French botanist, who studied the flora of China and Japan and authored *Contributions à la Flore de L'Asie Orientale*.

Homotypic synonyms: *Finetia* Schltr. nom. illeg.; *Nipponorchis* Masam. nom. illeg.

Profile: A genus of 3 epiphytic or lithophytic species found in China, Korea, Japan and the Ryukyu Islands.

General plant morphology: *Plant* monopodial, stems short, often branching at base, leaves numerous, distichous, bases imbricating and obscuring stem. *Leaf* narrow, ligulate, conduplicate, with distinct abscission line at base, rigid, leathery. *Inflorescence* a raceme, one or more simultaneous inflorescences, erect, lateral, axillary. *Flowers* few to several, simultaneous, resupinate, sepals and petals free, subsimilar, lip trilobed, spurred at base, white, rarely pinkish, pollinia 2.



Figure 4.1015 (above) A handsome specimen plant of *Neofinetia falcata* richly covered with flowers (Grower: Cindy Hill).

NEOFINETIA

Neofinetia richardsiana Christenson

Publication: *Lindleyana* 11: 220 (1996)

Etymology: Named in honour of Kerry Richards, co-owner of World of Orchids, in Kissimmee, Florida, who grew the species and provided the type material.

Morphology: *Plant* to 10 cm wide, stem 1.5–2 cm tall, erect, clumping. *Leaf* 3–6.5 cm long by 0.4–0.6 cm wide, subsessile, apex acute and bilobed, lamina arcuate. *Inflorescence* a raceme, peduncle to 0.8 cm. *Flower* 1.5–2 cm tall, 1–3 (rarely more) in number, spreading widely, sepals and petals straight to recurved, ovary long, pedicellate, to 5 cm.

Range, elevation and habitat: *Neofinetia richardsiana* occurs in the central provinces of Hubei and Sichuan, China, where it grows as an epiphyte on tree trunks in montane forest at elevations of 1300–2000 m. It blooms in the spring in April and May. Conservation status unknown, but likely threatened due to over-collection and habitat degradation.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. *Plants* may also be potted in moss or a fine to medium bark mix, using small pots. *Temperature* intermediate to cool. *Light* light shade. *Watering* allow to approach dryness between waterings. Do not keep wet. *Plants* should be kept somewhat drier and cooler during winter. *Humidity* high. *Air movement* good to brisk. *Propagation* sometimes by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency and strength of fertiliser during winter.

Comments: *Neofinetia richardsiana* appeared in cultivation several years ago in importations from China, but it is now infrequently seen in collections. The flowers are lovely, but lack the irresistibility of its larger cousin, *N. falcata* (while some forms and cultivars of *N. falcata* remain small, overall that species is not a miniature). It has much shorter spurs and is not fragrant. The smaller plants are essentially indistinguishable from most *N. falcata*, but they are still very attractive with their numerous, closely overlapping leaves and form beautiful clumps with age. Flowering in cultivation seems to be most frequent between early spring and mid-summer. If this species is acquired, it should be propagated by division or seed in order increase its availability in cultivation.

Note added in proof: Following recent phylogenetic analysis using DNA sequence data, new combinations are being made in the subtribe Aeridinae. One of these has been the transfer of all *Neofinetia* species to the genus *Vanda*. It has been proposed that this species now be known as *Vanda richardsiana* (see Gardiner, 2012).



Figure 4.1016 (above) *Neofinetia richardsiana* forms attractive growths in time (Grower: White Oak Orchids).

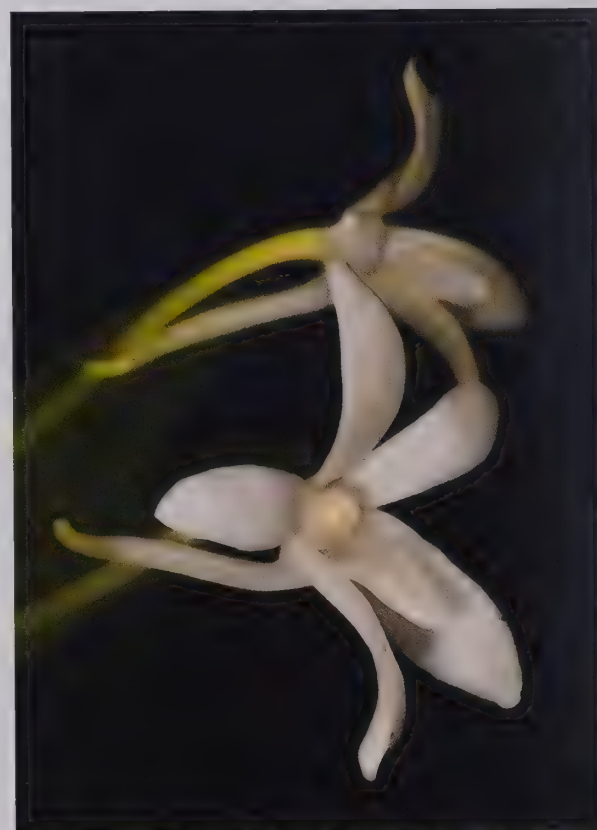


Figure 4.1017 (above) The pleasing flower of the Chinese endemic *Neofinetia richardsiana* (Grower: White Oak Orchids).

Oberonia Lindl.

Publication: Lindley, J., 1830, *Gen. Sp. Orchid. Pl.*: 15 (1830)

Subfamily: Epidendroideae

Tribe: Malaxideae

Subtribe: Malaxidae

Type species: *Malaxis ensiformis* Sm., 1812, in *A. Rees, Cycl.* 22: 14 = *Oberonia iridifolia* Lindl., 1830, *Gen. Sp. Orchid. Pl.*: 15, nom. superfl. = *Oberonia ensiformis* (Sm.) Lindl., 1859, *Fol. Orchid.* 8: 4.

Etymology: Named for *Oberon* (or *Auberon*), king of the fairies, who lived hidden in the woods with his kind. The choice of name alludes to the hard-to-see flowers of most species.

Profile: A large genus of over 320 species of miniature to medium-sized epiphytes, or occasionally lithophytes, that are widely distributed from tropical and southern Africa, Madagascar and the Mascarene Islands, east to India through Southeast Asia, and south to parts of Australasia. They grow in both lowland forest and lower and upper montane forest.

General plant morphology: *Plant* sympodial, usually descending to pendent, fan shaped (sometimes elongate), single to clumping. *Pseudobulb* absent, stems short to elongate, leaves alternate, distichous, usually imbricated. *Leaf* laterally flattened (bifacial), fleshy, leathery. *Inflorescence* a dense raceme, usually pendent, peduncle short, floral bracts usually minute, flowers spirally arranged or in whorls, often opening apically, terminal. *Flowers* minute, many in number, non-resupinate, subtended by bracts, widely spreading, sepals and petals free, subsimilar, lip entire or three to four-lobed, column short, stout, without wings or foot, pollinia 4.

General culture notes: *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. The species of this genus are not well-suited to potted culture due to the pendent nature of the plants. *Temperature* dependent upon species. *Light* generally light shade to medium shade, rarely bright diffused. *Watering* allow to dry briefly between waterings. Do not keep continuously wet. Some species undergo a drier period in nature. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency and strength of fertiliser slightly during winter.

Comments: *Oberonia* is a large, but under-appreciated genus of orchid wonders, bearing elongate, terminal racemes of often near-microscopic flowers. Taxonomically the genus is problematic, with many similar, yet hard to identify species. The authors have found this genus difficult to represent adequately as there are many desirable species, but the available literature is scant and misidentification rampant.



Figure 4.1018 (above) *Oberonia* produce dense racemes with flowers that are usually minute. Pictured, an *Oberonia* species of unknown identity that has been seen in collections as both *Oberonia falcata* and *Oberonia cuneata* (Grower: Marni Turkel).

OBERONIA

Oberonia carnososa Lavarack

Publication: *Austrobaileya* 1: 72–74, f. 6 (1977)

Etymology: From the Latin *carnosus* (fleshy), referring to the leaves of this species.

Morphology: *Plant* to 2.5 cm tall, clumping, erect, fan-shaped. *Stem* short, leaves 4–6 in number. *Leaf* to 2.5 cm long by 0.8 cm wide, sessile, ensiform, apex obtuse, lamina erect, fleshy, light green to reddish in colour. *Inflorescence* a raceme, to 6 cm in length, base with numerous whorled bracts, suberect to pendent. *Flower* 1.7 mm tall, sepals recurved to reflexed, orange to orange-brown in colour.

Range, elevation and habitat: A northeastern Australian endemic, *Oberonia carnososa* grows as an epiphyte and lithophyte in northern Queensland. It occurs in sparse scrub along stream banks in humid patches of forest, and on huge piles of boulders known locally as “The Rockpiles”. The plants grow in high light situations, often exposed to full sun for a significant part of the day. This species blooms between February and June in nature. Conservation status unknown, but this species is likely secure.

Culture recommendations: See general notes for the genus. *Light* bright diffused to light shade. *Temperature* intermediate, but this species can take cooler temperatures in the winter, down to 5 °C (41 °F) at night.

Comments: It is curious that some Australian epiphytic and lithophytic orchid species are represented in collections around the world, while others are rarely or never seen outside of their native countries. *Oberonia carnososa* is one such species, and is probably not well-represented even in Australian collections. As is the case with most *Oberonia*, the flowers of this species are minute but extremely interesting when viewed with a hand lens. Moreover, the plant is attractive in its own right. *Oberonia carnososa* is typically considered a spring bloomer in cultivation.



Figure 4.1019 (above) The inflorescence of *Oberonia carnososa*, an Australian endemic (Grower: Darryl Smedley).



Figure 4.1020 (above) *Oberonia titania* (syn. *O. palmicola*), a related Australian species, photographed growing on rocks on Mt. Coot-tha, Queensland (Photo: Gary Yong Gee).

OBERONIA

Oberonia cavaleriei Finet

Publication: *Bull. Soc. Bot. France* 55: 334 (1908)

Etymology: Named for the original collector, Domènico Cavaliere, a botanist who collected in the province of Guizhou, China.

Morphology: *Plant* to 15 cm long, clumping, pendent. *Stem* to 1.5 cm, leaves 4–5 in number. *Leaf* to 12 cm long by 0.7 cm wide, linear, falcate, apex acute, lamina erect in relation to the plant, subcylindric to compressed cylindric, leathery, fleshy, minutely papillose, stippled with greyish white. *Inflorescence* a raceme, 6–9 cm in length, peduncle covered in numerous bracts, pendent. *Flower* 2–3 mm tall, many in number, simultaneous, widely spreading. Flowers vary in colour from orange to yellow.

Range, distribution and habitat: *Oberonia cavaleriei* is found in China (western Guangxi, south and southwestern Guizhou, Jiangxi, Sichuan and southern Yunnan), India, Myanmar, Nepal, Thailand and Vietnam. It grows as a locally common epiphyte or lithophyte in montane forest or thickets at elevations of 800–1500 m. In Guangxi, this species was found growing lithophytically in light to deep shade on limestone outcrops with *Liparis chapaensis*, *Philodota yunnanensis*, *Paphiopedilum hirsutissimum*, *Panisea cavaleriei*, *Eria gagnepainii* and *Bulbophyllum andersonii*. This species blooms between July and November in various parts of its range.

Culture recommendations: *Temperature* intermediate. *Watering* this species should be kept slightly drier during the winter months, ensuring that the plant dries completely between waterings.

Comments: Although one of the more available species in the genus, *Oberonia cavaleriei* is taxonomically very confused. The species is often mislabelled, purchased and featured in many books as *Oberonia myosurus*, a name misapplied by Lindley when he determined that it was conspecific with *Epidendrum myosurus* Forster (now *Phreatia myosurus* (Forster) Ames). This species has wonderful, fleshy leaves, attractively stippled with grey, that curve gracefully inwards to come to a sharp point. The orangey flowers have an unusual, delicately lacy lip, and are densely arranged on a cylindrical spike. *Oberonia cavaleriei* tends to flower between mid-summer to mid-autumn in cultivation.



Figure 4.1021 (above) The densely flowered *Oberonia cavaleriei*, from eastern Asia (Grower: Cindy Hill).



Figure 4.1022 (above) *Oberonia cavaleriei* photographed *in situ*, northwestern Guangxi province, China. Elevation 800 m (Photo: Mary Gerritsen).

OBERONIA

Oberonia prainiana King & Pantl.

Publication: *J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist.* 64(2): 331 (1895)

Etymology: Named in honour of Sir David Prain (1857–1944), a Scottish physician and botanist who was curator of Calcutta Herbarium, Director of the Royal Botanic Gardens in Calcutta, professor of botany at the Medical College of Calcutta and, later, the director of the Royal Botanical Gardens at Kew.

Heterotypic synonym: *Oberonia brunnescens* Ridl.

Morphology: Plant to 5 cm tall, clumping, elongate fan-shaped, pendent. Stem very short, leaves to 5 in number. Leaf 3–5 cm long by 0.3 cm wide, oblong to obovate, slightly falcate, apex acute to sub-acute, lamina fleshy. Inflorescence a raceme, 8–12 cm long, verticillate, cylindrical, flowers basally dense, apically sparser. Flower 0.5–1.25 mm tall, margins of petals and lip dentate.

Range, elevation and habitat: *Oberonia prainiana* is a very widespread and locally common species from Assam, Eastern Himalayas, Nepal, West Bengal, northern and western Thailand, Java and Malaysia, where they are found in low to mid-montane forest at elevations of 300–1500 m. Flowering occurs between March and June in India, in August in Thailand, and in April to May in some other localities.

Culture recommendations: Temperature warm to intermediate.

Comments: This interesting species is one of the more widespread of the genus, although it is uncommon and often misidentified in collections. The elegant plant is slightly elongate fan-shaped, with an inflorescence that is proportionately long. It bears many minute, but incredibly intricate flowers. The margins of the petals and lip are toothed, but this feature cannot be seen with the naked eye. *Oberonia prainiana* tends to bloom in cultivation between early spring and mid-summer.

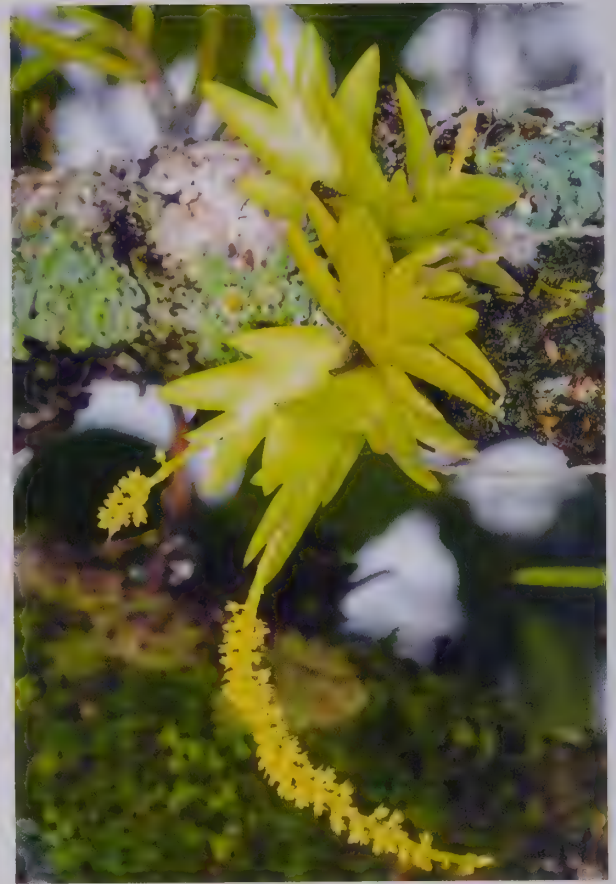


Figure 4.1023 (above) *Oberonia prainiana* in situ, Gori Valley, Pithoragarh, Uttarakhand India, elevation 1200 m (Photo: Dr Pankaj Kumar).



Figure 4.1024 (above) Detail of the tiny flowers of *Oberonia prainiana*. It grows as a twig epiphyte, usually in open areas (Photo: Dr Pankaj Kumar).

OBERONIA

Oberonia rimachila D.L.Jones & M.A.Clem.

Publication: *Austral. Orchid Res.* 5: 11 (2006)

Etymology: From the Latin *rima* (crack, narrow cleft) and *chila* (lip), referring to the narrow slit-like pit in the mid-lobe of the lip.

Morphology: *Plant* single to clumping, erect, fan-shaped. *Stem* short, leaves 5–7 in number. *Leaf* 5–7 cm long by 0.5–0.8 cm wide, sessile, ensiform to falcate, apex acute, apiculate, lamina green to reddish in colour. *Inflorescence* a dense raceme, to 14 cm long, suberect to pendent, bracts bristle-like. *Flower* 1.6 mm tall, in whorls of 8–10, widely spreading, often reflexed, translucent orange to pinkish in colour, petals appressed to dorsal sepal, margins irregular, lip three-lobed, dark orange to red.

Range, elevation and habitat: An Australian endemic from northeastern Queensland, *Oberonia rimachila* grows both epiphytically and lithophytically in a variety of habitats that include sheltered slopes near streams, humid areas in open forest, rainforest, coastal scrub and mangroves at elevations of 50–600 m. Flowering occurs between February and June in nature. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* intermediate, but cooler in winter. This species can tolerate to near freezing temperatures for brief periods, but it is best kept above 10 °C (50 °F).

Comments: As with *Oberonia carnososa*, this species is rarely seen outside of Australia. Relatively recently described, *O. rimachila* is differentiated from its relatives by the broad mid-lobe of the flat lip, which bears a slit-like pit, and by its flowers, which occur in whorls of 8 to 10 in number. Flowering in cultivation has been noted between mid-summer and mid-winter.

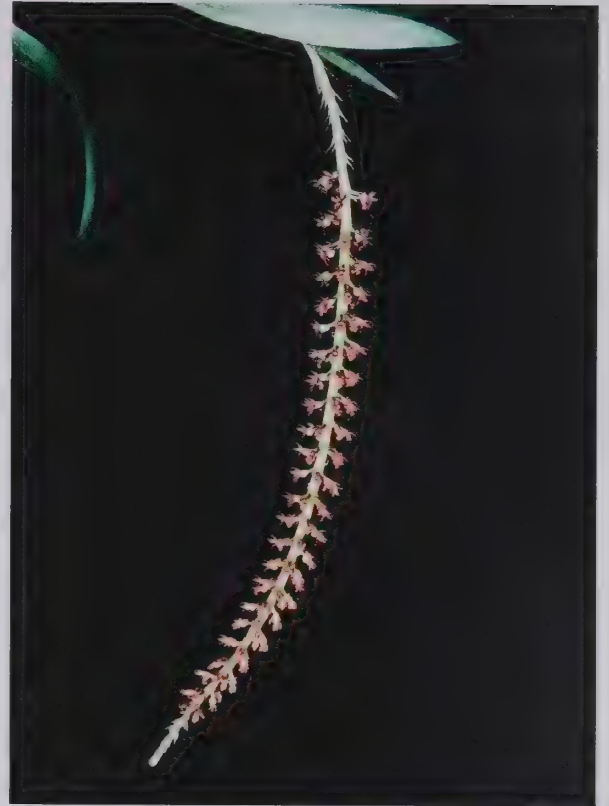


Figure 4.1025 (above) The dense raceme of *Oberonia rimachila*, a Queensland endemic (Grower: Ron Parsons).



Figure 4.1026 (above) The flowers of *Oberonia rimachila*, a species rarely seen outside of Australia (Grower: Ron Parsons).

OBERONIA

Oberonia setigera Ames

Publication: *Philipp. J. Sci.* C 7:10 (1912)

Etymology: From the Latin *seti* (bristly) and *gera* (carrying), in reference to the bristle like floral bracts.

Morphology: *Plant* to 12 cm tall, clumping, growths randomly orientated, branching at base, fan-shaped, leaves equitant, to 5 in number, roots fibrous. *Leaf* to 12 cm long by 1.9 cm wide, narrowly oblong, ensiform to falcate, apex obtuse to acute, lamina erect, flexible fleshy, marginate, margins suffused bronze-orangey. *Inflorescence* a densely flowered raceme, to 20 cm long, short pedunculate, with bristle-like subtending bracts, to 1.5 cm long, clustered at intervals, pendent. *Flower* to 2.5 mm tall, minute, many in number, widely spreading, lip margin dentate.

Range, elevation and habitat: Endemic to the Philippines, *Oberonia setigera* occurs in the provinces of Bataan and Nueva Viscaya, on the island of Luzon, and on Leyte. An uncommon species, it grows as an epiphyte on tree trunks and branches in shady situations at elevations near 1200 m.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to warm.

Comments: Plants of this delightful species are very attractive, producing bright green to slightly greyish green leaves with coppery-orangey margins. When in bloom, the colouration of the leaf margins blends nicely into the red-orange blooms. The flowers have prominent, hair-like bracts that enhance the long tail-like inflorescence. Spirally arranged, the tiny, numerous, crystalline textured flowers are quite stunning when viewed under magnification.



Figure 4.1027 (above) A flowering plant of *Oberonia setigera* is not a sight easily forgotten (Grower: Mary Gerritsen).



Figure 4.1028 (above) The stacked whorls of flowers of *Oberonia setigera* in detail (Grower: Mary Gerritsen).

Octomeria R.Br.

Publication: Brown, R., 1813, in Aiton, W.T., *Hortus Kew* 5: 211

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Octomeria graminifolia* (L.) R.Br., 1813, in W.T. Aiton, *Hortus Kew*. 5: 211.

Etymology: From the Greek *okto* (eight) and *meros* (part) referring to the 8 pollinia.

Heterotypic synonyms: *Aspegrenia* Poepp. & Endl., *Enothrea* Raf., *Gigliolia* Barb.Rodr., nom. illeg., *Octandrorchis* Brieger, nom. illeg.

Profile: A large genus of over 150 small to medium sized epiphytic, lithophytic or terrestrial species from the West Indies, most of Central America and south through most of the countries of South America, with a disproportionate number of species native to Brazil. They grow in lowland scrub to elfin forests, from near sea level to 3000 m.

General plant morphology: *Plant* sympodial, clumping, scandent or repent, branching freely. *Ramicaul* stem-like, short to tall, enclosed in sheaths, leaf apical, unifoliate. *Leaf* flat or terete, leathery to fleshy. *Inflorescence* a fascicle of single flowers, produced successively or simultaneously, borne at or near the apex of the ramicaul. *Flowers* usually small, single, sepals and petals subsimilar and usually free, a few species with lateral sepals partially or nearly wholly connate, petals entire, relatively large (for Pleurothallidinae), lip entire or trilobed, hinged to column foot, usually shorter than sepals or petals, column semi-terete, short or long, pollinia 8, usually in pairs of 4.

Comments: Note that many species of *Octomeria* have both miniature and larger forms, a fact that precludes the inclusion of a number of taxa in this book. Additionally, this genus has many interesting species worthy of cultivation, but they tend to be difficult to identify. *Octomeria*, in common with most Pleurothallids, are prone to infection by bean yellow mosaic virus (BYMV), which is introduced by aphids. Ensure plants are kept free of these pests.



Figure 4.1029 (above) This photo of an unidentified *Octomeria* species hints at the floriferous nature of many taxa within this genus (Grower: John Leathers).

OCTOMERIA

Octomeria estrellensis Hoehne

Publication: *Arq. Bot. Estado São Paulo, n.s., f.m.*, 1(1): 15 (1938)

Etymology: In reference to the site where this species was originally collected, the mountain range of the Serra da Estrella, in southern Brazil.

Morphology: *Plant* to 4.5 cm tall, creeping, branching, mat-forming. *Ramicaul* 0.2–1.6 cm long, covered in papery sheaths. *Leaf* to 4 cm long by 1.2 cm wide, shortly petiolate, ovate to elliptic-oblong, apex obtuse to rounded, lamina erect to spreading, leathery, thickly fleshy, rigid, marginate, often suffused ventrally with purple, punctate ventrally. *Inflorescence* a single-flowered raceme, abbreviated, approximately 1 cm in length, to 2 simultaneous, erect to suberect, slender. *Flower* 1.5–2 cm in diameter, proportionately large, single, resupinate, widely spreading, thin-textured, segments long, attenuate.

Range, elevation and habitat: *Octomeria estrellensis* occurs in the Mata Atlântica phytogeographic region of Brazil, in the states of Espírito Santo, Rio de Janeiro and São Paulo, where it grows as an epiphyte on trunks and large branches in dry, sunny to bright, indirectly lit conditions at elevations of 500–800 m. This species flowers between November and January in nature. Conservation status unknown, but likely threatened by general habitat degradation.

Culture: *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. Plants may also do well in small, shallow pots in a fast draining mix. *Temperature* intermediate to cool. *Light* bright diffused. *Watering* water frequently, but allow to dry completely between waterings. Do not keep moist. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength, but reduce fertiliser in the winter.

Comments: *Octomeria estrellensis* is an excellent selection for any miniatures collection. It has proportionately large, pale yellow, showy, star-like flowers. The soft yellow colouration is offset nicely by the wine-red base of the mid-lobe, which can extend onto the side-lobes of the lip. The plant is also handsome, with thickened, succulent leaves that are suffused with purple on the underside. This species is uncommon in collections, at least within the United States, but it is hoped that it will be propagated and so rendered more widely available. Flowering occurs between mid- and late spring in cultivation.



Figure 4.1030 (above) *Octomeria estrellensis* bears wonderful, star-like flowers (Grower: Marni Turkel).



Figure 4.1031 (above) *Octomeria estrellensis* in situ, São Paulo, Brazil. It is growing in an area near the coast at 500–800 m elevation in bright shade (Photo: Marcelo Rodrigues).



Figure 4.1032 (above) A pair of *Octomeria estrellensis* flowers produced by a mounted plant (Grower: Marni Turkel).

Figure 4.1033 (below) Plants of *Octomeria estrellensis* growing as epiphytes in Brazil (Photo: Marcelo Rodrigues).

Oestlundia W.E.Higgins

Publication: Higgins, W. E., 2001, *Selbyana* 22: 1

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Oestlundia cyanocolumna* (Ames, F.T.Hubb. & C.Schweinf.) W.E.Higgins, 2001, *Selbyana* 22: 4.

Etymology: Named for Karl Erik Magnus Östlund (1857–1938), a Swedish orchid collector who botanised the mountainous areas of Mexico and collected the type species of the genus.

Profile: A genus of 4 epiphytic species found in Mexico and south through Central America to Colombia and Venezuela. They are usually found in dry forests at elevations of 600–2000 m.

General plant morphology: *Plant* sympodial, erect, rhizome branching, clumping to repent, with growths to 3 cm apart along rhizome. *Pseudobulb* ovoid, globose, conical or fusiform-ovoid, leaves to 3 in number, apical. *Leaf* narrow, linear, ligulate-linear or elliptic-ligulate, apex acute to obtuse, leathery. *Inflorescence* a raceme or panicle, terminal. *Flowers* to 12 in number, resupinate, petals and sepals subsimilar, lip unlobed, basally adnate to column to 1/3 to 3/5 of length of column, lip unlobed, with fleshy ridges or papillae, distally warty, column with rounded mid-tooth, shorter wing-like lateral teeth, lacking ear-like lateral projections, rostellum horizontal, pollinia 4.



Figure 4.1034 (above) *Oestlundia cyanocolumna* bears pretty flowers with unusual colouration (Grower: Mary Gerritsen).

OESTLUNDIA***Oestlundia cyanocolumna*** (Ames, F.T.Hubb. & C.Schweinf.)

W.E.Higgins

Publication: *Selbyana* 22: 4 (2001)**Etymology:** From the Latin *cyano* (blue) and *columna* (column), referring to the bluish colour of the column.**Homotypic synonyms:** *Epidendrum cyanocolumna* Ames, F.T.Hubb. & C.Schweinf., *Encyclia cyanocolumna* (Ames, F.T.Hubb. & C.Schweinf.) Dressler.**Morphology:** *Plant* 6–12 cm tall, creeping, rhizome much branched, slightly ascending, pseudobulbs clustered, mounding. *Pseudobulb* 1–1.7 cm tall by 0.5–1 cm wide, pyriform, leaves 2–3 in number. *Leaf* 4–10 cm long by 0.2–0.5 cm wide, conduplicate at base, narrowly-linear to ligulate, apex acute, erect but slightly spreading towards apex, flexible, leathery. *Inflorescence* a raceme or panicle, to 30 cm in length, slender, suberect to descending. *Flower* 1.2–1.5 cm long, 5–12 in number, occasionally more, simultaneous, resupinate, not spreading widely, campanulate, column with long lateral teeth. Flowers vary in the colour of the sepals and petals, from green to dark brown, and of the column, from blue to purple.**Range, elevation and habitat:** A Mexican endemic, *Oestlundia cyanocolumna* grows as an epiphyte in the Sierra Madre Oriental and the Sierra Madre de Oaxaca in the states of Hidalgo, Nueva Leon, Oaxaca, Puebla, San Luis Potosí and Tamaulipas. It is found in oak forest, oak-pine-*Liquidambar* forest, and evergreen cloud forest at elevations of 1500–2000 m. This species flowers between April and June in nature. Conservation status unknown.**Culture recommendations:** *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles and possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. The authors have not seen this species cultivated in pots, but it may possibly do so using an open, medium bark mix. *Temperature* intermediate to intermediate-cool, but keep the plants slightly cooler in the winter. *Light* light shade. *Watering* water frequently from mid-spring to mid-autumn, but do not keep wet. Allow roots to dry briefly, but completely between waterings. Reduce frequency of watering in the autumn or when pseudobulbs mature; in winter mist roots every 10–14 days. *Humidity* high during the growing season, average during winter months. *Air movement* good to brisk. *Fertilise* at 1/4 strength weekly, but withhold fertiliser during winter.**Comments:** An unusual species, not often seen in collections, *Oestlundia cyanocolumna* is occasionally available. The small, but very pretty flowers feature an unusual bluish column. Blooming can be prolific on a specimen plant, and fortunately, a good-sized plant takes up little room. It is the type species of this small genus that is more closely related to *Prosthechea* than *Encyclia*. Flowering occurs in late spring to early summer in cultivation.**Figure 4.1035 (above)** The flower of the Mexican *Oestlundia cyanocolumna* in detail (Grower: Mary Gerritsen).**Figure 4.1036 (above)** *Oestlundia cyanocolumna* flowers borne on its slender inflorescence (Grower: Mary Gerritsen).



Oncidium Sw.

Publication: Swartz, O. P., 1800, *Kongl. Vetensk. Acad. Nya Handl.* 21: 239, nom. cons.

Subfamily: Epidendroideae
Tribe: Maxillarieae
Subtribe: Onciinae

Type species: *Oncidium altissimum* (Jacq.) Sw., 1800, *Kongl. Vetensk. Acad. Nya Handl.* 21: 240.

Etymology: The diminutive of the Greek *onkos* (swelling, tumour), in reference to the raised, often tuberculate callus of the lip of the type species.

Heterotypic synonyms: *Chamaeleorchis* Senghas & Lückel, *Cochlioda* Lindl., *Collare-stuartense* Senghas & Bockemühl, *Gynizodon* Raf., *Miltoniastrum* (Rchb.f.) Lindl., *Heteranthocidium* Szlach., Mytnik & Romowicz, *Odontoglossum* Kunth in F. W. H. von Humboldt, A. J. A. Bonpland & C. S. Kunth, *Mexicoa* Garay, *Miltonioides* Brieger & Lückel, *Petalocentrum* Schltr., *Roezliella* Schltr., *Solenidiopsis* Senghas, *Sigmatostalix* Rchb.f., *Symphyglossum* Schltr., *Xeilyathum* Raf.

Profile: A large genus of over 250 epiphytic, lithophytic or terrestrial species, occurring in southern Florida, Mexico, and Central America south to Peru, Bolivia, Argentina and Paraguay, as well as many of the Caribbean islands.

General morphology: *Plant* sympodial, highly variable, clumping to repent. *Pseudobulb* ovoid to ellipsoid, often laterally compressed, sometimes with carinate edges, frequently ridged, usually subtended by leafy bracts, leaves 2–4 in number, apical. *Leaf* bifacial, articulate. *Inflorescence* a raceme or panicle, 1-few simultaneous inflorescences, usually longer than leaves, some species flowering repeatedly from the same inflorescence, erect to pendent, lateral from base of pseudobulb. *Flowers* one to many in number, resupinate, more or less simultaneous, sepals and petals subsimilar, free or rarely with lateral sepals variously fused, lip linear, hastate or trilobed, sometimes clawed, sub-equal to sepals and petals, or larger, often pandurate, callus conspicuous, often glossy, simple to complex tuberculate or toothed structure, column straight to arcuate, with or without wings, pollinia 2.

General morphology of species belonging to the former genus *Sigmatostalix*: *Plant* clumping, branching, erect. *Pseudobulb* laterally compressed, subtended and basally enclosed by 1–2 pairs of leafy bracts, leaves 1–2 in number, apical. *Leaf* thin, often ligulate, leathery, flexible. *Inflorescence* a raceme or panicle, slender, often re-blooming in species with panicles, lateral/axillary. The species with panicles have several re-blooming, abbreviated, single-flowered branches. *Flower* column proportionately large, elongate, arcuate. Plants in this group are found mostly in South America, with a few species from Central America and Mexico. They can occur in a wide range of habitats from hot, humid lowlands to cooler, montane regions.

General culture recommendations for species belonging to the former genus *Sigmatostalix*: *Substrate* mount on cork oak, rough barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. They may also be grown in small pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* light shade to medium shade. *Watering* keep moist, well drained, not wet. Reduce frequency of waterings in areas with short winter days or long overcast periods to avoid possibility of rot. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly. It is best to reduce fertiliser application as pseudobulbs mature.

Figure 4.1037 (facing page) *Oncidium cheirophorum* is a wonderful species, comprising small plants that bear prolific and brilliant flowers with a surprising fragrance (Grower: Cindy Hill).

ONCIDIUM

Oncidium brevicorne (Königer & J.Portilla) M.W.Chase & N.H.Williams

Publication: *Lindleyana* 21(3): 22 (2008)

Etymology: From the Latin *brevi* (short) and *cornis* (horn), referring to the short, horn like side-lobes of the lip.

Homotypic synonym: *Sigmatostalix brevicornis* Königer & J.Portilla.

Morphology: *Plant* to 10 cm tall. *Pseudobulb* 0.8–2.5 cm tall by 0.4–1.3 cm wide, ovoid to elliptical, strongly laterally compressed with carinate edges, subtending leafy bracts, several in number, leaves apical, 1–2 in number. *Leaf* to 8 cm long by 1 cm wide, oblong-lanceolate, apex acute, lamina erect. *Inflorescence* a panicle, to 15 cm in length, rachis with 4–5 loosely spaced nodes producing successive, abbreviated, single flowered branches, erect to suberect. *Flower* to 1.8 cm long, many in number, 4–5 open simultaneously, successive, resupinate, widely spreading, sepals and petals narrow, lip with horn-like lateral lobes, semicircular, oil secretions on flat, dorsal side.

Range, elevation and habitat: *Oncidium brevicorne* has thus far only been found in Ecuador. It grows on the western slopes of the Andes in montane, seasonally wet forest in the provinces of Carchi and El Oro, at elevations of approximately 1200 m elevation. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the species formerly placed within *Sigmatostalix*. *Temperature* intermediate. *Light* light shade to medium shade.

Comments: A relatively recently described species, *Oncidium brevicorne* is one of approximately 55–60 species of the former genus *Sigmatostalix* that are now considered to belong to *Oncidium*, despite the cohesive, uniform characteristics of the group. One of many species with re-blooming spikes, the attractive flowers are of a good size, with distinctive, short, curled, horn-like lateral lobes on the lip. An interesting feature, although not one that is readily noticeable, is the oil-secreting glands on the inside of the lobes, used to attract pollinators. Flowering occurs in early winter in cultivation, but plants are likely to bloom in other seasons as well.



Figure 4.1038 (above) The flower of *Oncidium brevicorne*, a recently described taxon of merit (Grower: MarniTurkel).



Figure 4.1039 (above) A slightly different *Oncidium brevicorne* colour form (Grower: Hanging Gardens).

ONCIDIUM

Oncidium eliae (Rolfe) M.W.Chase & N.H.Williams

Publication: *Lindleyana* 21(3): 24 (2008)

Etymology: Named for Elia, wife of Mr. Joseph Birchenall of Cheshire, England, from whose collection the plant was described.

Homotypic synonym: *Sigmatostalix eliae* Rolfe.

Morphology: *Plant* to 12.5 cm tall. *Pseudobulb* to 1.5 cm tall by 1 cm wide, laterally compressed, ovoid to oblong, unifoliate. *Leaf* to 11 cm long by 1.5 cm wide, conduplicate, oblong to narrowly elliptic-oblong, apex acute, erect to suberect, ventrally suffused with or entirely reddish. *Inflorescence* a panicle, many branched, 1–2 simultaneous inflorescences, to 18 cm in length, rachis with several loosely spaced nodes producing successive, abbreviated single-flowered branches, erect to suberect. *Flower* to 1 cm long, several simultaneous, many in number, successive, resupinate, sepals and petals reflexed, lip trilobed, lateral lobes linear-oblong, blunt, mid-lobe rounded to reniform. Flowers vary in pattern and size.

Range, elevation and habitat: *Oncidium eliae* grows on the eastern slopes of the Andes mountains at elevations between 500 and 2200 m, and has been found in Columbia (department of Santander), Ecuador (provinces of Azuay, Morona-Santiago, Pastaza, Tungurahua and Zamora-Chinchi) and Peru (department of Cajamarca). It grows as an epiphyte in moist to wet montane forest. This species blooms in any month in Ecuador, and between June and August in Peru. Conservation status unknown.

Culture recommendations: See general notes for the species formerly placed within *Sigmatostalix*. *Temperature* warm to intermediate, although the authors have seen many plants growing well under intermediate-cool conditions. *Watering* water frequently, not wet, but less frequently when not actively growing. Never let this species dry out completely. *Light* light shade to medium shade.

Comments: Over the last several years, *Oncidium eliae* has become quite popular due to increased availability from some of the South American vendors who travel to international shows. The flowers of this species are bright and cheerful, yet extremely variable in colour and patterning. Highly recommended, it is easy to grow given the proper conditions. In cultivation, *Oncidium eliae* may bloom in any month of the year.



Figure 4.1040 (above) *Oncidium eliae* produces bright, variable blooms (Grower: Kay Klumb).

Figure 4.1041 (overleaf) A wonderful *Oncidium eliae* flower in profile (Grower: Kay Klumb).



ONCIDIUM

Oncidium gramineum (Poepp. & Endl.) M.W.Chase & N.H.Williams

Publication: *Lindleyana* 21(3): 24 (2008)

Etymology: From the Latin *gramineus* (grassy), referring to the narrow leaves.

Homotypic synonyms: *Sigmatostalix graminea* (Poepp. & Endl.) Rchb.f., *Specklinia graminea* Poepp. & Endl.

Heterotypic synonyms: *Petalocentrum angustifolium* Schltr., *Petalocentrum bicornutum* (Rolfe) Schltr., *Petalocentrum pusillum* (Schltr.) Schltr., *Sigmatostalix aurosanguinea* Rchb.f., *Sigmatostalix bicornuta* Rolfe, *Sigmatostalix peruviana* Rolfe, *Sigmatostalix pusilla* Schltr.

Morphology: Plant 4–9 cm tall, rhizome much branched, slightly ascending. *Pseudobulb* to 1.2 cm tall by 0.5 cm wide, narrowly elliptic to oblong, sometimes densely speckled with purplish brown, unifoliate. *Leaf* to 8 cm long by 0.5 cm wide, linear, apex acute to obtuse, lamina arcuate, erect to suberect. *Inflorescence* a raceme, to 6 cm in length. *Flower* 0.5 cm tall, to 4, rarely more, in number, simultaneous, resupinate, widely spreading.

Range, elevation and habitat: *Oncidium gramineum* is a common and relatively widespread species found in Colombia, Ecuador (provinces of Napo and Zamora-Chinchipe), Peru (department of Amazonas and Huánuco) and Bolivia (departments of Cochabamba and La Paz) at elevations between 250 and 2250 m. It grows as an epiphyte in wet montane forest and cloud forest. Bloom-time records indicate that it flowers in almost any month in nature. Conservation status unknown.

Culture recommendations: See general notes for the species formerly placed within *Sigmatostalix*. *Temperature* warm to intermediate-cool.

Comments: This species is quite likely the most frequently grown member of the former *Sigmatostalix*. *Oncidium gramineum* has small, but cheerful, bright yellow flowers, and unlike many of its close relatives, the inflorescence only blooms once. Common in cultivation and easy to grow to specimen size, this species is readily available. It blooms at any time of the year in cultivation.



Figure 4.1042 (above) A quartet of *Oncidium gramineum* flowers against a backdrop of leaves (Grower: White Oak Orchids).



Figure 4.1043 (above) An epiphytic *Oncidium gramineum* photographed *in situ* (Photo: Stig Dalström).

ONCIDIUM

Oncidium unguiculoides M.W.Chase & N.H.Williams

Publication: *Lindleyana* 21(3): 27 (2008)

Etymology: From the Latin *unguiculatus* (claw), referring to the long narrow claw of the lip, with the Greek suffix *-oides* (like, resembling).

Homotypic synonym: *Sigmatostalix unguiculata* C.Schweinf.

Morphology: Plant to 7 cm tall. *Pseudobulb* to 1.5 cm tall by 1 cm wide, elliptic-oblong or ovoid, often marked with purple reticulations, unifoliate. *Leaf* to 6 cm long by 0.8 cm wide, subpetiolate, linear-oblong to elliptic, apex acute to obtuse, lamina erect. *Inflorescence* a raceme, to 6 cm in length, erect, slender. *Flower* to 1 cm long, to 4 in number, successive, resupinate, but lip uppermost, widely spreading, segments strongly reflexed, lip and column proportionately large.

Range, elevation and habitat: *Oncidium unguiculoides* is a species thought to be endemic to Costa Rica, in the provinces of Puntarenas and San José, where it grows as an epiphyte in moist, montane forest at elevations of approximately 975 m. Records indicate that it flowers in December in nature, but it is quite likely to bloom in other months also. Conservation status unknown.

Culture recommendations: See general notes for the species formerly placed within *Sigmatostalix*. *Temperature* intermediate. *Light* medium shade.

Comments: *Oncidium unguiculoides*, better known as *Sigmatostalix unguiculata*, is a great little species, one of the smallest of the former *Sigmatostalix*. Both the flowers and plant are quite attractive. Perhaps the most distinctive feature about the blooms are the proportionately large, bright yellow, anchor-shaped lips that point straight up, a feature that is enhanced by the strongly reflexed segments. The tightly clustered pseudobulbs are often marked with purple reticulations, giving a handsome appearance, particularly when grown on a mount. Flowering occurs between autumn and early spring in cultivation.



Figure 4.1044 (above) *Oncidium unguiculoides* blooms produce anchor-like, upright lips (Grower: Cindy Hill).

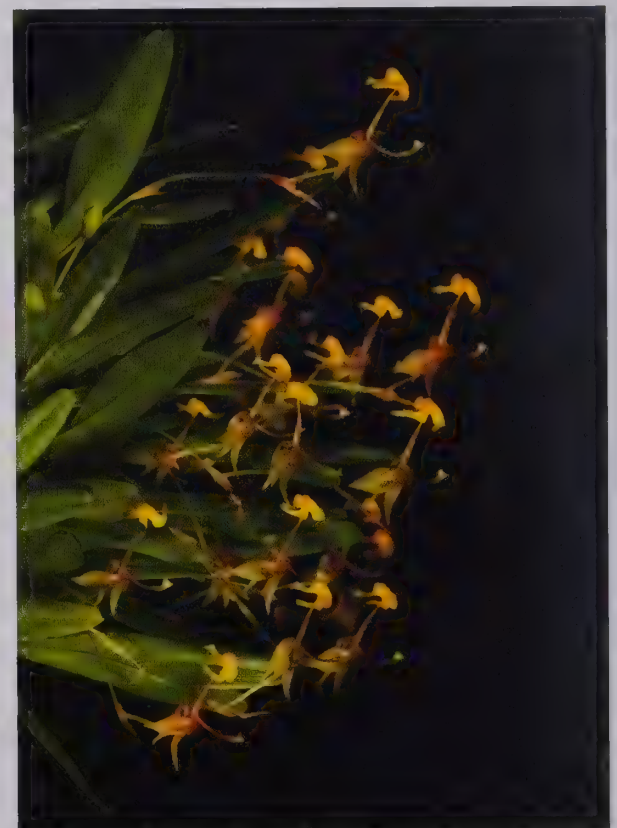


Figure 4.1045 (above) A mass of *Oncidium unguiculoides* flowers erupt from a mounted specimen (Grower: Cindy Hill).

ONCIDIUM

Oncidium weinmannianum (Königer) M.W.Chase & N.H.Williams

Publication: *Lindleyana* 21(3): 27 (2008)

Etymology: Named for Mr. Johann G. Weinmann, from Grubach, Germany, who grew the plant for many years.

Homotypic synonym: *Sigmatostalix weinmanniana* Königer.

Morphology: *Plant* to 7 cm tall. *Pseudobulb* to 1.5 cm tall by 0.7 cm wide, elliptic-oblong, leaf apical, unifoliate. *Leaf* to 5.5 cm long by 0.7 cm wide, shortly petiolate, narrowly elliptic, apex acute, lamina erect. *Inflorescence* a panicle, rachis with several loosely spaced nodes producing successive, abbreviated, single flowered branches, to 16 cm in length (including peduncle), 1–2 simultaneous inflorescences, erect to suberect. *Flower* to 0.8 cm long, 3–5 in number, simultaneous, lip trilobed, mid-lobe deeply bifurcate.

Range, elevation and habitat: To date, *Oncidium weinmannianum* has only been found in Ecuador. The type collection had no other data, but the taxon has been relatively recently found in the provinces of Morona-Santiago (1200 m) and Imbabura (600 m) (Ivan Portilla, pers. comms., 2011). No bloom-time records are known. This species is listed as data deficient on the IUCN Red List.

Culture recommendations: See general notes for the species formerly placed within *Sigmatostalix*. *Temperature* intermediate.

Comments: *Oncidium weinmannianum* is uncommon in cultivation, but it is occasionally available. The small, airy flowers are quite distinctive, particularly in terms of the long lip with its long, prominent, two-forked mid-lobe, which is akin to a snake tongue. This is one of the former *Sigmatostalix* species with re-blooming inflorescences; the spikes look as if they are only sending up new blooms from the same nodes, but these are actually abbreviated branches. *Oncidium weinmannianum* generally blooms between mid-autumn and late winter in cultivation.



Figure 4.1046 (above) *Oncidium weinmannianum* has rather distinct flowers with a forked mid-lobe (Grower: MarniTurkel).

Ornithidium Salisb. ex R.Br.

Publication: Brown, R., 1813, in Aiton, W.T., *Hortus Kew* 5: 211

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Maxillariinae

Type Species: *Epidendrum coccineum* Jacq = *Ornithidium coccineum* (Jacq.) Salisb. ex R.Br., 1813, in W.T. Aiton, *Hortus Kew*. 5: 210.

Etymology: From the Latin, *ornitho* (pertaining to bird) and *idium* (diminutive suffix), alluding to some fancied resemblance of the flowers to birds.

Heterotypic synonyms: *Laricorchis* Szlach., *Neo-urbania* Fawc. & Rendle, *Siagonanthus* Poepp. & Endl.

Profile: A relatively large genus of approximately 55 epiphytic, lithophytic or terrestrial species that range from southern Mexico through Central America and south to Bolivia and Brazil, as well as many islands of the Caribbean.

General plant morphology: *Plant* sympodial or monopodial (some with dimorphic growth habit, namely sympodial juvenile shoots and monopodial adult shoots). *Pseudobulb* absent or present, variable in shape when present, but most commonly ovoid to subglobose, sometimes laterally compressed, often enclosed in several imbricate leafy bracts, leaves apical, 1–2 (occasionally to 4) in number. *Leaf* commonly ligulate to elliptic-lanceolate, articulate, leathery to sub-fleshy. *Inflorescence* a single-flowered raceme, or in fascicles, from base of pseudobulb or axils of leaves or sheaths on cane-like stems. *Flowers* fleshy or rarely membranous, usually campanulate or subglobose, rarely spreading, lip fleshy, simple or trilobed, usually lacking callus, usually rigidly attached to column foot, column erect, often arcuate, usually semi-terete, with foot, pollinia 4, sub-equal.



Figure 4.1047 (above) A magnificent, suspended specimen plant of *Ornithidium sophronitis* in bloom (Grower: Hanging Gardens).

ORNITHIDIUM

Ornithidium sophronitis Rchb.f.

Publication: *Bonplandia* (Hannover) 2: 18 (1854)

Etymology: From the Greek *sophronitis* (modesty), in reference to the small flowers.

Homotypic synonyms: *Maxillaria ruberrima* var. *sophronitis* (Rchb.f.) M. Wolff & O. Gruss, *Maxillaria sophronitis* (Rchb.f.) Garay.

Morphology: Plant 2.5–4.5 cm tall, creeping, repent, pseudobulbs spaced 2.5–3.5 cm apart along rhizome, mat-forming. *Pseudobulb* to 2.5 cm tall by 1 cm wide, ovoid, slightly compressed, ridged, reddish-brown, unifoliate with pair of similar, subtending leafy bracts. *Leaf* 0.9–2 cm long by 0.6–1.2 cm wide, oblong-elliptic, apex rounded, apiculate, lamina suberect to spreading, thick, rigid, leathery, rugose. *Inflorescence* a single-flowered raceme, to 4 cm long including peduncle, lateral from base of pseudobulb. *Flower* 1.5–2.4 cm tall, resupinate, spreading widely, but petals forward-facing.

Range, elevation and habitat: *Ornithidium sophronitis* is found in southeastern Colombia, but principally in the coastal ranges of Venezuela in the states of Falcon and Yaracuy, where it occurs at elevations between 750–1700 m. This species often forms mats on tree trunks in cloud forest. It is relatively common and blooms between November and December in nature.

Culture recommendations: *Substrate* mount on large flat pieces of cork oak, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. It may be best to grow this species on a horizontal raft. It is not really suited to small pots given its rambling habit, but can be grown in bulb pans or baskets using moss. *Temperature* intermediate to cool. *Light* bright diffused. *Watering* keep moist, well drained, not wet. May be allowed to dry for brief periods without harm. *Humidity* high. *Air movement* brisk. *Propagation* easily by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing slightly during winter.

Comments: *Ornithidium sophronitis*, long known as *Maxillaria sophronitis* and often labelled as such, is an extremely popular plant. The specific name means modest, but the brilliantly red flowers, with bright yellow on the lip and a glistening, crystalline texture, are anything but modest, drawing much attention. An easy species to grow, plants can readily be grown into specimen size. There are two common forms in cultivation, one being the typical size most frequently seen, whilst the other is half as large again in all respects. If growing a plant to specimen size is your goal, consider growing it in a basket. It will grow outwards at first, then the weight of the plant will draw it over the sides, eventually obscuring the basket. Some clones are said to be shy blooming, but they are more likely to simply be in need of cooler conditions. Flowering in cultivation tends to occur most heavily between late summer and early spring.



Figure 4.1048 (above) The flower of *Ornithidium sophronitis* is of a brilliant red colour (Grower: White Oak Orchids).



Figure 4.1049 (above) *Ornithidium sophronitis* flowers are borne at the base of the pseudobulbs (Grower: White Oak Orchids).



Ornithocephalus Hook.

Publication: Hooker, W. J., 1824, *Exot. Fl.* 2: t. 127

Subfamily: Epidendroideae
Tribe: Maxillarieae
Subtribe: Oncidiinae

Type species: *Ornithocephalus gladiatus* Hook., 1824, *Exot. Fl.* 2: t. 127.

Etymology: From the Greek *ornis* (bird) and *kephale* (head), referring to the column, which is shaped liked the head of a bird.

Heterotypic synonyms: *Oakes-Amesia* C.Schweinf. & P.H.Allen, *Sphyrastylis* Schltr.

Profile: A relatively large genus of nearly 50 small to miniature epiphytic species from low to middle elevations (0–2000 m), often in wet forests. *Ornithocephalus* species are found in Mexico through Central America, and south into South America as far as Bolivia and Brazil, as well as Trinidad and Tobago and the Windward Islands.

General plant morphology: *Plant* sympodial (regarded by some as monopodial), often pendent, single or clumping, some species branching at the base, fan-shaped to elongate, laterally flattened. *Pseudobulbs* absent, stem covered with overlapping leaf sheaths, leaves distichous, imbricating at base, several to many in number. *Leaf* leaves articulated to the persistent conduplicate leaf bases, bifacial, fleshy, leathery, flexible to semi-rigid, persistent. *Inflorescence* a raceme, few to many simultaneous inflorescences, flowers distichous or in semi-whorls, axillary. *Flowers* small, several to many, simultaneous, usually resupinate, but orientation variable, sepals and petals free, subsimilar, lip entire or trilobed with fleshy callus near base, column proportionately large, arcuate, often asymmetric, without spur, pollinia 4.

General culture notes: *Substrate* mount plants pendently on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species are not suited to pot culture due to the generally pendent nature of the plants. *Temperature* dependent upon species; in general, warm to intermediate, but members of the former genus *Sphyrastylis* are from higher elevations and require intermediate-cool to cool conditions; none of the latter group are included in this work. *Light* light shade to medium shade. *Watering* water frequently, but allow to dry slightly between waterings. Do not keep plants moist. Reduce water in winter, particularly in areas with short winter days and long overcast periods so as to reduce the likelihood of rot. *Humidity* high. *Air movement* good. *Propagation* occasionally by division or seed. Some plants remain as single growths and therefore must be propagated by seed. *Fertilise* at 1/4 strength weekly, but reduce or omit fertiliser during the winter months.

Comments: *Ornithocephalus* is a large genus of highly collectable miniatures that are very popular with growers. The plants are highly attractive, easy to cultivate, and many species are available. The flowers are small, intricate and fascinating, but can be difficult to identify. They are often mislabelled when purchased.

ORNITHOCEPHALUS

Ornithocephalus bicornis Lindl.

Publication: in G. Bentham, *Bot. Voy. Sulphur*: 172 (1846)

Etymology: From the Latin *bi* (two) and *cornis* (horned), referring to the small, recurved hooks on the lateral lobes of the lip.

Heterotypic synonyms: *Ornithocephalus diceras* Schltr., *Ornithocephalus oberonia*, *Ornithocephalus lanuginosus* Ames, *Ornithocephalus stenoglottis* Rchb.f., *Ornithocephalus xiphochilus* Schltr., *Zygostates costaricensis* Nash.

Morphology: Plant 3.5–12 cm wide, but to 15 cm or rarely larger in cultivation, often pendent, acaulescent. Leaf 1.5–9 cm long by 0.4–1.2 cm wide, lanceolate to oblong-lanceolate, apex obtuse to acute. Inflorescence a raceme, to 10 cm in length, to 12 or more simultaneous inflorescences, usually equal to or shorter than leaves, densely hispid, erect in relation to plant, floral bracts narrowly oblong, concave, margins and dorsal surface setose. Flower to 0.5 cm in diameter, barely spreading, floral segments with finely toothed margins, sepals reflexed, concave, exterior hispid, lip long, ligulate, incurved, pedicels minute. Flowers vary from greenish-white to greenish-yellow in colour.

Range, elevation and habitat: An extremely widespread species, *Ornithocephalus bicornis* grows in Mexico (Quintana Roo), Belize (district of Toledo), Guatemala (departments of Alta Verapaz, Izabal and Petén), El Salvador, Nicaragua (departments of Atlántico Norte, Atlántico Sur, Boaco, Chontales, Jinotega, Río San Juan and Rivas), Honduras (department of Atlántida), Costa Rica (provinces of Alajuela, Cartago, Guanacaste, Heredia, Limón and Puntarenas), Panama (provinces of Canal Area, Chiriquí, Darién, Panamá, San Blas and Veraguas), Colombia (departments of Antioquia and Chocó), Peru (departments of Madre de Dios and San Martín), Venezuela, French Guiana, Guyana, Suriname, Brazil (states of Pará, Amazonas and Rondônia) and possibly the Windward Islands. It occurs at elevations from near sea level to 1300 m, but most commonly below 1000 m. Common to abundant, it grows epiphytically, usually low on trees in well-shaded situations in tall evergreen forest and tropical and lower montane rainforest. This species blooms mostly during the winter months in nature.

Culture recommendations: See general notes for the genus. Temperature warm to intermediate.

Comments: *Ornithocephalus bicornis* is a desirable species to add to any collection. Fortunately, it is one of the easiest species of the genus to both grow and obtain. As with so many of its congeners, it can be highly floriferous, with 12, or even more, simultaneous spikes, each bearing numerous flowers. When the roundish flowers are viewed in profile, it is easy to see the two horn-like projections the species is named for. Approaching from opposite directions, the long, narrow lip curves nearly



Figure 4.1051 (above) This blooming of *Ornithocephalus bicornis* 'Tuxedo' was awarded a Certificate of Cultural Merit by the AOS to the grower (Grower: Tim Legant).



Figure 4.1052 (above) The flowers of *Ornithocephalus bicornis* in detail (Grower: Mary Gerritsen).

ORNITHOCEPHALUS

half circle, and the shorter, but also strongly arcuate column, comes from the other direction. Both the outside of the flower and the peduncle are noticeably fuzzy. *Ornithocephalus bicornis* is sometimes confused with *O. cochleariformis*, but the photographs and descriptions for these two species should assist with identification. *Ornithocephalus bicornis* usually flowers between late winter and mid-summer in cultivation.



Figure 4.1053 (above) Multiple *Ornithocephalus bicornis* inflorescences in bloom (Grower: White Oak Orchids).



Figure 4.1054 (above) The flowers of a possible form of *Ornithocephalus bicornis* (Grower: Howard Gunn).

ORNITHOCEPHALUS

Ornithocephalus bryostachys Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 35: 104 (1925)

Etymology: From the Greek *bryo* (moss) and *stachys* (ear of grain, spike), referring to the fine, bristly inflorescence and exterior of the flowers.

Morphology: *Plant* to 12 cm wide. *Leaf* to 8 cm long by up to 1.2 cm wide, lanceolate to oblong-ligulate, apex acute, lamina falcate, fleshy. *Inflorescence* a raceme, to 7 cm long, rachis densely pubescent, flower sub-secund. *Flower* 0.4–0.5 cm tall, many in number, spreading widely, sepals yellow, exterior carinate, densely pubescent, broadly ovate, apex obtuse, petals white, broad, incurved, margins revolute, column slightly asymmetric, rostellum long.

Range, elevation and habitat: *Ornithocephalus bryostachys* is a comparatively localised endemic of western Ecuador, where it is found in the provinces of Bolivar, Chimborazo, Esmeraldas, Guayas, Los Ríos, Manabí and Morona-Santiago at elevations of 60–730 m. It grows as an epiphyte on tree trunks and large branches in wet tropical and wet montane forest, where it is not uncommon. It blooms between July and November in nature.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate.

Comments: This is one of several species of the genus with wonderful, bristly inflorescences, and also one of many that are much confused, both in collections and the literature. *Ornithocephalus bryostachys* has two distinctive traits that, in addition to the fuzzy spikes, may aid in its recognition; the broad, forward curving petals with rolled-back (revolute) margins and the long, asymmetrical column that turns to one side. This species tends to flower between mid-autumn and late winter in cultivation.



Figure 4.1055 (above) The dense raceme of *Ornithocephalus bryostachys* (Grower: Mary Gerritsen).



Figure 4.1056 (above) The cute little flowers of *Ornithocephalus bryostachys* in detail (Grower: J & L Orchids).

ORNITHOCEPHALUS

Ornithocephalus cochleariformis C.Schweinf.

Publication: *Bot. Mus. Leaff.* 4: 124 (1937)

Etymology: From the Latin *cochlea* (snail) and *formis* (form), referring to the shell-like shape of the lip.

Morphology: *Plant* 3.5–12 cm wide, leaves numerous. *Leaf* 3–7.5 cm long by 0.7–1.5 cm wide, narrowly elliptic to broadly ensiform, apex acute to sub-acute. *Inflorescence* a congested raceme, 9–12 cm in length, one to many simultaneous inflorescences, slender, suberect to pendent in relation to plant, densely glandular-hirsute, floral bracts ovate, slightly convex, margins glandular-fimbriate. *Flower* to 0.6 cm in diameter, many in number, spreading, campanulate, frontal view round, segments full in shape, concave, basally overlapping, exterior densely glandular-hirsute, lip concave, apex upturned, triangular.

Range, elevation and habitat: *Ornithocephalus cochleariformis* occurs in Costa Rica, Panama (provinces of Coclé and Panamá), Colombia (department of Chocó) and possibly Ecuador, at elevations of 50–1000 m, where it grows as an epiphyte in moist to wet montane forest, often near streams, as well as in trees in valleys and marshes. This species is locally common to abundant, and collection records from Panama and Colombia indicate that it blooms in January and February in that country.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: Another gem in this genus is the relatively common, but highly rewarding, *Ornithocephalus cochleariformis*. It has many desirable traits; the plant is striking, very floriferous, easy to grow, and readily available. Similar to *O. bicornis* in many ways, *O. cochleariformis* is sometimes confused with the former since both species have fuzzy, roundish flowers and a fuzzy peduncle. However, the flowers of *O. cochleariformis* are slightly larger, the sepals are not reflexed, and the lip is scoop-like and concave, with an upturned, triangular apex. Additionally, the hairs on the back and along the margin of the floral segments are visible from the front. *Ornithocephalus cochleariformis* flowers between late winter and mid- to late spring in cultivation.



Figure 4.1057 (above) A mounted plant of *Ornithocephalus cochleariformis* 'Jack' in heavy flower (Grower: Adam Anderson).



Figure 4.1058 (above) The fuzzy, rounded blooms of *Ornithocephalus cochleariformis* 'Jack' (Grower: Adam Anderson).



ORNITHOCEPHALUS

Ornithocephalus dolabratus Rchb.f.

Publication: *Linnaea* 41: 106 (1876)

Etymology: From the latin *dolabra* (hatchet) and *formis* (formed), referring to shape of the petals.

Morphology: *Plant* 3–6 cm wide, pendent. *Leaf* 3–3.7 cm long by 0.5–0.6 cm wide, lanceolate, falcate, apex acute. *Inflorescence* a semi-dense raceme, approximately equal to leaves, slender, multi-angular in cross section, suberect in relation to plant, sub-secund. *Flower* to 0.6 cm tall, to 15 in number, possibly more in cultivation, widely spreading, sepals apiculate, dorsal sepal small, petals erect, truncate, revolute, lip basally concave, elongate, apex cordate, attenuate, acute, callus densely muriculate, with prominent papule.

Range, elevation and habitat: *Ornithocephalus dolabratus* occurs in Colombia, as well as in Ecuador (provinces of El Oro, Guayas and Manabí), at elevations of 500–1300 m. It grows as an epiphyte in moist tropical cloud forest, and as well as in seasonally dry forest with frequent fogs. It is relatively common and flowers between April and October in nature.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: Yet another species in this genus that is thoroughly confused in the literature and on the internet. Based on the original species description, it is reasoned that the species illustrated is the true *Ornithocephalus dolabratus*. This species can have numerous simultaneous inflorescences, although the spikes are not as densely flowered as certain of its congeners. The sepals are proportionately small, with an apicule, and the prominent petals are erect, extending alongside and above the column. They are longitudinally revolute with a truncate, upper margin. The elongate lip is distinctive, bearing a raised, minutely spiny callus with a notable green “pimple” and a triangular, sharply pointed apex. *Ornithocephalus dolabratus* is easy to grow, relatively available if indeed correctly labelled, and also highly rewarding. Flowering in cultivation tends to occur during the summer months.



Figure 4.1059 (above) A mature inflorescence of *Ornithocephalus dolabratus* (Grower: Mary Gerritsen).



Figure 4.1061 (above) The flowers of *Ornithocephalus dolabratus* have apiculate sepals (Grower: Mary Gerritsen).

Figure 4.1060 (facing page) Detail of an arching *Ornithocephalus dolabratus* inflorescence (Grower: Mary Gerritsen).

ORNITHOCEPHALUS

Ornithocephalus inflexus Lindl.

Publication: *Ann. Nat. Hist.* 4: 384 (1840)

Etymology: From the Latin *inflexus* (bent, curving inwards), probably referring to the incurved apex of the labellum.

Heterotypic synonyms: *Ornithocephalus elephas* Rchb.f., *Ornithocephalus mexicanus* A.Rich. & Galeotti, *Ornithocephalus pottsiae* S.Watson, *Ornithocephalus salvinii* Rchb.f. ex Hemsl., *Ornithocephalus tonduzii* Schltr.

Morphology: Plant 5 to 12 cm wide, branching. Leaf 3.5–10 cm long by 0.3–0.5 cm wide, linear-lanceolate to linear-falcate, apex acute, acuminate, lamina erect. Inflorescence a dense raceme, to 15 cm in length, usually longer than leaves, erect in relation to plant, slender, flowers distichous, secund, large subtending bracts. Flower to 0.6 cm wide, to 30 in number, sepals small, reflexed, rounded, apiculate, petals proportionately large, spreading, flabellate, apex rounded, minutely crenulate, lip base concave, lateral lobes and base of mid-lobe glossy, apex long, attenuate, incurved.

Range, elevation and habitat: A widespread and relatively common species, *Ornithocephalus inflexus* occurs in Mexico (states of Campeche, Chiapas, Jalisco, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatan), Belize (departments of Belize, El Cayo and Toledo), Guatemala (departments of Alta Verapaz, Izabal and Petén), Honduras (department of Copán), Nicaragua (department of Jinotega), Costa Rica (provinces of Cartago, Limón and San José) and Panama (provinces of Bocas del Toro and Chiriquí). It is found at elevations between near sea level and 2750 m, although it is more frequently found at elevations under 2000 m. This species grows as an epiphyte in a variety of habitats, including tropical deciduous forest, forests on limestone hills and outcrops, pine forest, oak/liquidambar forest, montane rainforest, palm forests and on trees in pastures and savannahs. It is considered common. Flowering occurs mostly during the winter, though plants have been collected in bloom in Mexico, Belize, Guatemala and Nicaragua between April and July.

Culture recommendations: See general notes for the genus. *Temperature* warm to cool depending on plant provenance; if uncertain, grow in intermediate conditions.

Comments: *Ornithocephalus inflexus* is a widespread species, and is fortunately relatively common in cultivation. This species can be difficult to identify, and is occasionally seen labelled in collections as *O. iridifolius*. However, when closely examined, the flowers of the two species are not all that similar. For *O. inflexus*, the characteristics to look for are the proportionately large, prominent, fan-shaped, spreading petals, and the small, reflexed, rounded sepals. Somewhat bowl-like, the concave base of the lip, including the side-lobes, is glossy. The lip then constricts into a long, narrow apex that curves out of sight when viewed frontally.



Figure 4.1062 (above) *Ornithocephalus inflexus* bears flowers in an alternating rank (Grower: Tom Mudge).



Figure 4.1063 (above) Flowers of *Ornithocephalus inflexus* seen in profile (Grower: Ron Parsons).

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Ornithocephalus inflexus is usually pendent, with numerous inflorescences that also appear pendent, but which are actually erect in relation to the plant. It can be therefore be rather confusing to determine whether the flowers are resupinate or non-resupinate depending on one's point of view. The individual flowers resemble birds in flight, the petals corresponding to wings in an upstroke, and the column approximating the head and beak. This species flowers between mid-summer and late winter in cultivation.



Figure 4.1064 (above) Detail of the *Ornithocephalus inflexus* flower shows the spreading, flabellate petals clearly (Grower: Tom Mudge).

ORNITHOCEPHALUS

Ornithocephalus iridifolius Rchb.f.

Publication: in W. G. Walpers, *Ann. Bot. Syst.* 6: 494 (1863)

Etymology: From the Greek *iridi* (iris) and Latin *folius* (leaf), referring to the iris-like leaves.

Morphology: *Plant* 3.5–8 cm tall, leaves equitant. *Leaf* 2.5–7.5 cm long by 0.3–0.6 cm wide, linear-ensiform, apex acute, acuminate, lamina articulate, fleshy. *Inflorescence* a raceme, to 10 cm in length, peduncle winged, wings irregularly serrulate, spreading. *Flower* to 0.5 cm in diameter, many in number, sepals small, spreading, dorsally carinate, concave, apiculate, petals proportionately large, forward-pointing, broadly flabellate, unguiculate, revolute at base, apex rounded, minutely erose-ciliate, lip broad, sub-triangular, 3-lobed, lateral lobes thick, fleshy, ovary pedicellate.

Range, elevation and habitat: *Ornithocephalus iridifolius* is found in Mexico (state of Veracruz), Guatemala (departments of Alta Verapaz, Petén and Santa Rosa), Belize (districts of El Cayo and Toledo) and El Salvador. It grows as a common epiphyte on trees and shrubs in open oak forest, deciduous tropical forest and occasionally in coffee plantations at elevations of up to approximately 1200 m. It flowers in August and September in nature.

Culture recommendations: See general notes for the genus. *Temperature* intermediate. *Watering* water frequently during the growing season, reducing frequency of watering in winter months.

Comments: *Ornithocephalus iridifolius* is another commonly available species of this fascinating genus, and in common with its congeners, it has delightful and intricate flowers. As indicated under the entry for *O. inflexus*, these two species are sometimes confused. Both are highly floriferous, but the inflorescences of *O. iridifolius* are generally as long as or slightly longer than the leaves, whereas those of *O. inflexus* are noticeably longer, nearly always surpassing the leaves. Moreover, the flowers differ substantially. *Ornithocephalus iridifolius* has proportionately large petals, but they face forward at near right angles to each other, nearly touching along the upper margin and forming a hood over the column. The bases of the petals are clawed, with margins that are rolled back. The sepals are small by comparison, oblong, with an apicule, and the lip is long-acuminate, almost triangular in outline, with an acute apex and its green centre indented slightly, giving it a sigmoid profile. Flowering in cultivation seems to occur in late winter and mid-summer, but possibly at other times.

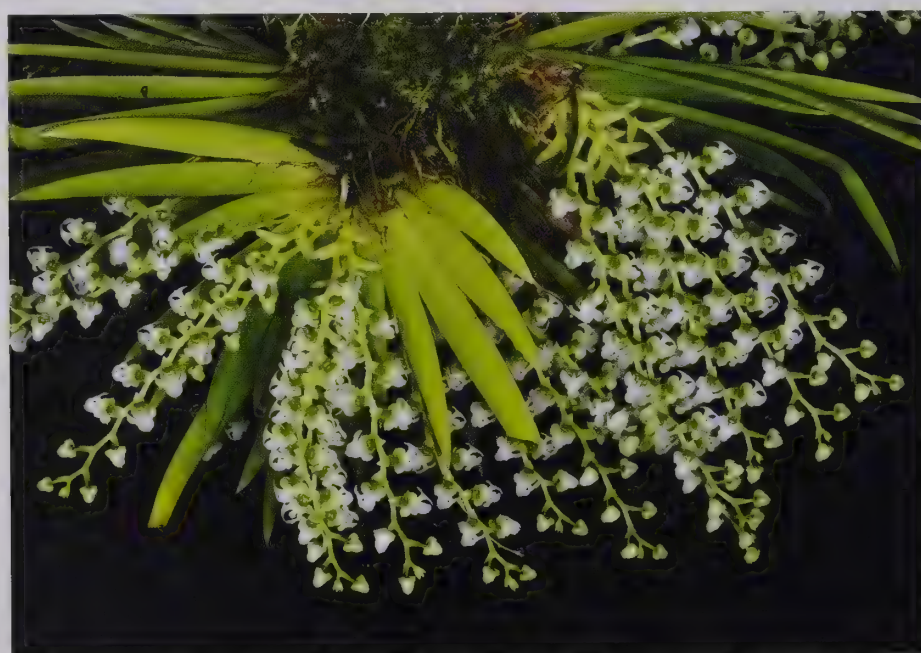


Figure 4.1065 (above) Mounted *Ornithocephalus iridifolius* plants are architecturally pleasing and highly floriferous (Grower: White Oak Orchids).

Figure 4.1066 (facing page) *Ornithocephalus iridifolius* flowers in detail (Grower: Howard Gunn).



Pabstiella Brieger & Senghas

Publication: Brieger, F. G., & Senghas, K., 1976, *Orchidee (Hamburg)* 27: 195

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Pabstiella mirabilis* (Schltr.) Brieger & Senghas, 1976, *Orchidee (Hamburg)* 27: 195

Etymology: Named in honour of Guido Pabst (1914–1980), managing director of the Brazilian airline Varig and a renowned botanist. Pabst worked with the Brazilian orchid flora and founded the Herbarium Bradeanum, which houses one of the largest orchid collections in Brazil.

Heterotypic synonyms: *Anthereon* Pridgeon & M.W.Chase, nom. illeg., *Gyalanthos* Szlach. & Marg., *Ronaldella* Luer.

Profile: A genus of nearly 30 epiphytic species occurring in Costa Rica and south to Peru, Brazil and northern Argentina. They grow at elevations ranging from 50–2500 m in a variety of habitats that include scrub, grassland and cloud forest.

General plant morphology: *Plant* sympodial, clumping to repent, mostly miniature, rhizome branching, roots slender. *Ramicaul* erect, enclosed in 1–3 tubular or infundibular sheaths, leaf apical, unifoliate. *Leaf* elliptical, apex acute to obtuse, lamina flexible, leathery. *Inflorescence* a raceme, borne from fascicle, terminal. *Flowers* non-resupinate or resupinate, dorsal and lateral sepals connate at base, lateral sepals often connate and forming a conspicuous mentum with column foot, column semi-terete, hooded and/or winged in some species, column foot length variable, pollinia 2.



Figure 4.1067 (above) Crowded blooms hang from a plant of *Pabstiella tripterantha* (Grower: Mary Gerritsen).

PABSTIELLA

Pabstiella mirabilis (Schltr.) Brieger & Senghas

Publication: *Orchidee (Hamburg)* 27: 195 (1976)

Etymology: From the Latin, *mirabilis* (wonderful, extraordinary), probably referring to the flowers.

Homotypic synonyms: *Anthereon mirabilis* (Schltr.) Pridgeon & M.W.Chase, *Gyalanthos mirabilis* (Schltr.) Szlach. & Marg., *Pleurothallis mirabilis* Schltr., *Specklinia mirabilis* (Schltr.) Luer.

Heterotypic synonym: *Pleurothallis longicornu* Kraenzl.

Morphology: *Plant* 5–10 cm tall, clumping, erect to suberect. *Ramicaul* to 5 cm long, erect to suberect, slender. *Leaf* to 4 cm long by 1 cm wide, petiolate, elliptical, apex obtuse to rounded, lamina thickened, erect to suberect in relation to ramicaul. *Inflorescence* a raceme, to 5 cm in length, suberect to pendent, fractiflex, filiform, slender. *Flowers* to 0.9 cm tall, to 6 in number, nearly simultaneous, spreading, spur thick, prominent, slightly clavate.

Range, elevation and habitat: *Pabstiella mirabilis* occurs in the phytogeographic region of the Mata Atlántica of southern Brazil and is found in the states of Paraná, Santa Catarina and Rio Grande do Sul. It grows epiphytically in cool, moist montane forest at elevations of approximately 900 m. Although confirmed bloom-time records could not be found, it is likely that this species flowers in nature between late winter and early spring, as it does in cultivation. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. This species may be grown potted in small pots or baskets with moss or a fine bark mix, but it displays its flowers most attractively when grown mounted due to the descending nature of its inflorescences. *Temperature* intermediate-cool to cool. *Light* light shade to medium shade. *Watering* keep moist and well drained, not wet. This species may dry out for brief periods without harm to the plant. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly, but it is best to reduce fertiliser frequency during the winter months. Pleurothallids, including *Pabstiella*, are prone to infection by bean yellow mosaic virus (BYMV), which is introduced by aphids. Ensure plants are kept free of these pests.

Comments: *Pabstiella mirabilis*, a former member of the genus *Pleurothallis*, is an attractive and desirable species to grow. The prolific foliage is attractive in its own right, but when one adds multitudes of arching to pendent spikes of unusually-shaped, bright white flowers, it becomes a show-stopper. The blooms are so different looking that this species does not appear to have any close relatives, certainly looking nothing like any of



Figure 4.1068 (above) The distinctive flowers of *Pabstiella mirabilis* (Grower: Steve Beckendorf).

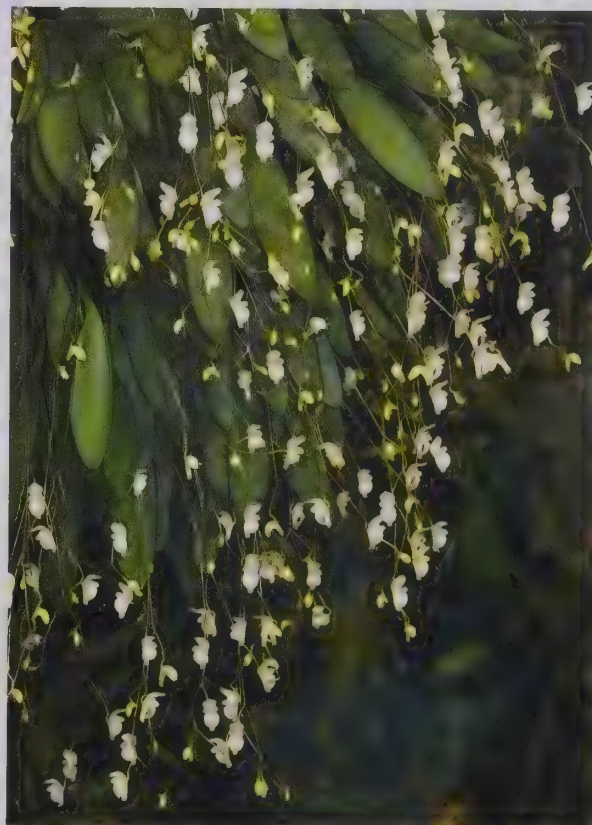


Figure 4.1069 (above) A multitude of *Pabstiella mirabilis* flower spikes (Grower: Steve Beckendorf).

PABSTIELLA

its congeners. *Pabstiella mirabilis* is easy to grow given the right conditions; the plant freely branches, making it an ideal candidate to grow to specimen size. Flowering in cultivation occurs in late winter to early spring.



Figure 4.1070 (above) Detail of a pair of *Pabstiella mirabilis* blooms reveals their minute perfection (Grower: Mary Gerritsen).

Panisea (Lindl.) Lindl.

Publication: Lindley, J., *Fol. Orchid.* 5: 1 (1854), nom. cons.

Subfamily: Epidendroideae
Tribe: Coelogyneae
Subtribe: Coelogyinae

Type species: *Panisea demissa* (D.Don) Pfitzer in H.G.A.Engler (ed.), 1907, *Pflanzenr.*, IV, 50(32): 141 (as *Panisea parviflora* (Lindl.) Lindl.).

Etymology: From the Greek *pan* (all) and *isos* (equal), referring to the petals and sepals of near equal size and shape.

Heterotypic synonyms: *Androgyne* Griff., *Sigmatogyne* Pfitzer, *Zetagyne* Ridl.

Profile: A small genus of 11 epiphytic and lithophytic species from Nepal, Northeast India, Bhutan, Myanmar, China, Thailand, Laos, Cambodia and Vietnam. They occur in subtropical to montane forest at elevations of 300–3300 m.

General plant morphology: *Plant* sympodial, clumping, creeping to shortly repent, rhizome branching. *Pseudobulb* ovoid to obovoid, often obliquely erect to occasionally prostrate, leaves apical, 1–2 in number. *Leaf* petiolate, narrowly elliptic to linear, thinly leathery. *Inflorescence* a raceme, peduncle obscured by imbricating scarious bracts, usually descending to pendent, lateral/terminal. *Flowers* small to medium sized, one to several in number, resupinate, usually white, greenish to orange in colour, sepals and petals free, subsimilar, thin-textured, lip unlobed or three-lobed, more or less distinctly clawed at base, 2–3 small calli with middle keel, column arching, middle usually broadly winged, pollinia 4 in 2 pairs.



Figure 4.1071 (above) A cluster of *Panisea apiculata* flowers. Rare in cultivation, this taxon grows to approximately 22.5 cm (9 in) in height (Grower: MarniTurkel).

PANISEA

Panisea albiflora (Ridl.) Seidenf.

Publication: *Contr. Revis. Orchid Fl. Cambodia. Laos/Vietnam*: 87 (1975)

Etymology: From the Latin *albus* (white) and *flora* (flower), referring to the white flowers.

Homotypic synonym: *Zetagyne albiflora* Ridl.

Morphology: *Plant* to 8 cm tall. *Pseudobulb* 1–1.8 cm long by 0.5–1 cm wide, conical to ovoid, 4–6 small, subtending bracts at base, bifoliate. *Leaf* 4.5–7 cm long by 0.6–0.9 cm wide, petiole 0.3–0.5 cm, narrowly elliptic, apex obtuse, lamina suberect to slightly spreading, flexible. *Inflorescence* a congested raceme, 4–5 cm in length, erect, terminal. *Flower* 1–1.2 cm wide, to 8 in number, simultaneous, resupinate, spreading, campanulate, sepals 5-keeled.

Range, elevation and habitat: *Panisea albiflora* occurs in China (province of Hainan Dao) and southern Vietnam (provinces of Kontum, Lam Dong and Quang Binh) at elevations of 1100–2900 m. The species is common and grows as a canopy epiphyte in mid- to high montane primary forest, often on steep mountain slopes of sandstone and gneiss. Although this region experiences a dry season of sorts between March and August, it is very humid and foggy. This species flowers between March and June in nature. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species may also be grown potted in small pots with moss or a fine bark mix. *Temperature* intermediate to cool. During winter it should be kept cooler. *Light* light shade. *Watering* keep moist and well drained, not wet. Keep plants slightly drier in winter. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing or withholding during dormancy.

Comments: *Panisea albiflora* is one of the more commonly available species of the genus, and has lovely, pure white flowers on relatively short, dense spikes. It is easy to grow under the right conditions, branches freely and forms choice, compact, specimens. The flowers are reminiscent of its relative, *Dicksonia vernicosa*, but the latter is a larger plant with rounder pseudobulbs and flowers that are spaced regularly along a pendent spike. *Panisea albiflora* is an early to mid-spring bloomer in cultivation.

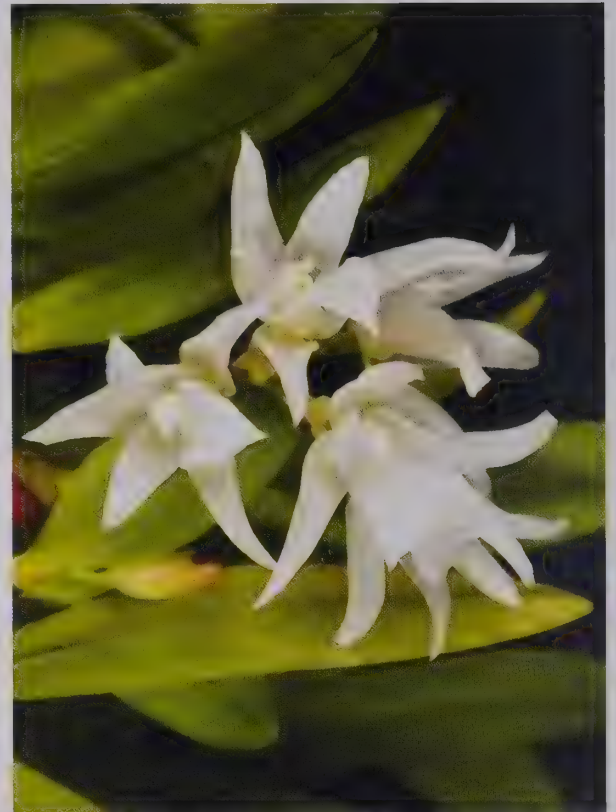


Figure 4.1072 (above) The lovely white flowers of *Panisea albiflora* (Grower: Cindy Hill).



Figure 4.1073 (above) Pendent *Panisea albiflora* 'Barbara's Delight' (CBR/AOS) flowers (Grower: Barbara van der Stoep).

PANISEA

Panisea demissa (D.Don) Pfitzer

Publication: in H.G.A.Engler (ed.), *Pflanzenr.*, IV, 50(32): 141 (1907)

Etymology: From the Latin *demissus* (low, humble), possibly referring to the flowers.

Homotypic synonym: *Dendrobium demissum* D.Don.

Heterotypic synonyms: *Coelogyne parviflora* Lindl., *Panisea parviflora* (Lindl.) Lindl.

Morphology: *Plant* 4–10 cm tall, clumping. *Pseudobulb* 1.5–3 cm long by 0.6–1.4 cm wide, conical to conical-ovoid, semi-translucent, veined with whitish colouration, partially enclosed in 2–3 subtending bracts, leaves 1–2 (occasionally 3) in number. *Leaf* 5–7.5 cm long by 0.8–1.5 cm wide, petiolate, lanceolate to narrowly elliptic-lanceolate, apex acute, lamina flexible. *Inflorescence* a raceme, 3–7.5 cm in length, flowers with subtending bracts, descending to pendent, slender, lax, heteranthous, lateral from separate growth. *Flower* 1.2–1.8 cm tall, to 8 in number, simultaneous, resupinate, spreading widely, vertically narrow, column broadly winged distally, stained brown.

Range, elevation and habitat: *Panisea demissa* is a widespread species, found in Nepal, Bhutan, Northeast India (states of Sikkim and West Bengal), China, Myanmar, Laos, Thailand and Vietnam at elevations of 300–3300 m. It is often found growing epiphytically on moss-covered small tree trunks in subtropical evergreen forest, flowering between October and December in nature. It is a vulnerable species, though still locally common. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species can also be grown potted in small pots using moss or a fine bark mix, but recognise that the pendent inflorescences can hang below the pot. *Temperature* intermediate to cool. *Light* bright diffused to light shade, but ensure humidity is high. *Watering* keep moist and well drained, not wet, but reduce water in the autumn or when pseudobulbs mature. *Mist* roots every 10 days or so in the winter. *Humidity* high during growing season, but average in winter. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing or withholding fertiliser during winter dormancy to discourage premature new growth.

Comments: *Panisea demissa* has unusually shaped flowers, but they are lovely in their own right. The bright white, very narrow blooms are offset by caramel coloured staining on the winged column and base of the lip. Whilst not rare, this species is not often seen in collections. It is probably best grown on a mount given its pendent spikes, presenting plants to best effect. Flowering occurs between mid-autumn and early winter.



Figure 4.1074 (above) *Panisea demissa*, in situ, Central Nepal, elevation 1800 m, in a *Rhododendron arboreum* forest (Photo: Bhakta Bahadur Raskoti).

Figure 4.1075 (overleaf) The beautiful flowers of *Panisea demissa* in detail (Grower: Marni Turkel).



Papillilabium Dockrill

Publication: Dockrill, A. W., 1967, *Australas. Sarcanthinae*: 31

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

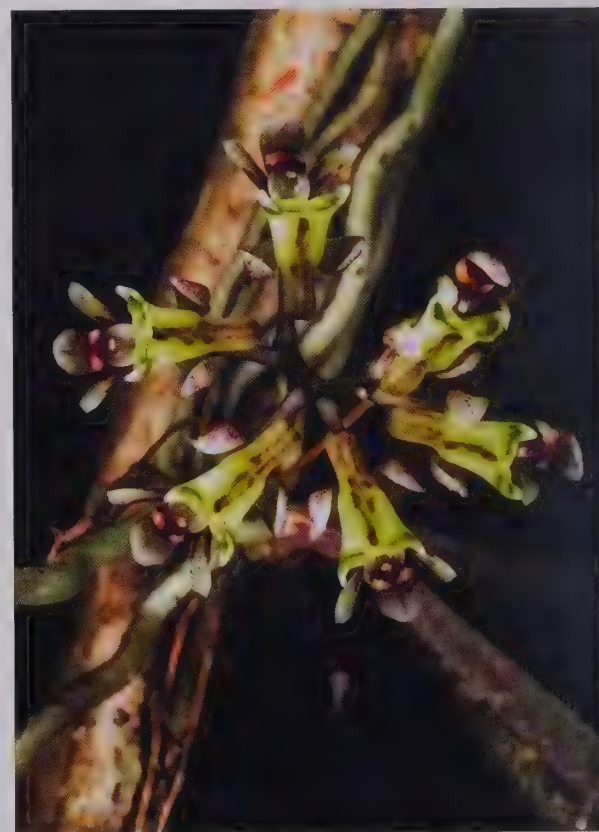
Type species: *Papillilabium beckleri* (F.Muell. ex Benth.) Dockrill, 1967, *Australas. Sarcanthinae*: 31.

Etymology: From the Latin *papillatus* (small lumps) and *labia* (lip), referring to the warty lip.

Profile: A monotypic, epiphytic genus endemic to eastern Australia. *Plant* monopodial, for additional detail see entry for *Papillilabium beckleri*.



Figure 4.1076 (above) A *Papillilabium beckleri* plant growing *in situ* at Ellenborough Falls, New South Wales, Australia.

PAPILLILABIUM***Papillilabium beckleri*** (F.Muell. ex Benth.) Dockrill**Publication:** *Australas. Sarcanthinae*: 31 (1967)**Etymology:** Honouring the original collector, Hermann Beckler (1828–1914), doctor and botanist on the Victorian Exploring Expedition of Burke and Willis, the first to cross the Australian continent (1860–1861).**Homotypic synonyms:** *Cleisostoma beckleri* F.Muell. ex Benth., *Sarcanthus beckleri* (F.Muell. ex Benth.) Rupp, *Saccolabium virgatum* T.E.Hunt, *Sarcochilus beckleri* (F.Muell. ex Benth.) F.Muell.**Morphology:** Plant 4–10 cm wide, stem to 4 cm long, usually single, erect to descending, leaves distichous, 2–6 in number, roots thin, wiry, tangled, often with long root run, plant sometimes hanging by 1–2 roots from twigs. Leaf to 5 cm long by 0.4 cm wide, narrowly linear, often falcate, apex acute, lamina leathery, often spotted with brownish to purplish colour. Inflorescence a raceme, to 4 cm long, pendent, slender, flowers arranged spirally toward apex of inflorescence, lateral, axillary. Flower 0.5–0.8 cm long, 2–8 in number, simultaneous, spreading widely, spur hollow, 0.2 cm in length, flowers somewhat long-lasting (2–3 weeks).**Range, elevation and habitat:** An eastern Australian endemic, *Papillilabium beckleri* occurs in the states of Queensland and New South Wales at elevations between sea level and 600 m. This species is an epiphyte that is often found growing on the outer twigs of trees along creeks and gullies in rain forests, frequently hanging over water. It can be suspended by just one or two of its many aerial roots, and may be locally common, sometimes forming vast colonies. *Papillilabium beckleri* blooms during the spring in nature.**Culture recommendations:** *Substrate* mount on thin pieces of rough-barked hardwood, possibly cork bark or rough wood shingles, but probably not tree fern. Use very little, if any, New Zealand *Sphagnum* moss around the roots, but ensure humidity is high. This species is not suited to pot culture as the roots do not tolerate continuous moisture; they require good air circulation and need to dry out between waterings. *Temperature* warm to intermediate during late spring to mid-autumn, but this species requires cooler temperatures during the winter and can survive temperatures close to freezing. Even so, it is best to keep this species above 5 °C (41 °F) minimum at night. *Light* light shade. *Watering* water freely during spring through autumn, but ensure that the roots dry out between waterings. Reduce watering frequency somewhat during the winter, but do not withhold completely and ensure that plant does not become desiccated. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed. *Fertilise* at 1/4 strength weekly, but it is best to reduce or withhold fertiliser during the winter months. This species is considered rather difficult, and since it is a twig epiphyte in nature, it may be naturally short-lived.**Figure 4.1077 (above)** A *Papillilabium beckleri* plant growing *in situ* at Ellenborough Falls, New South Wales, Australia.**Figure 4.1078 (above)** A *Papillilabium beckleri* flower cluster, photographed *in situ* at Ellenborough Falls, New South Wales, Australia.

PAPILLILABIUM

Comments: Rarely seen outside of its native land, *Papillilabium beckleri* has a reputation for being a difficult subject in cultivation, dying suddenly without any apparent cause. Although the plants have short stems, the flowers are very similar to those of its distinctly longer stemmed relatives in the genus *Plectrorhiza*. Indeed, some feel this species should be moved to that genus. Whilst small, the flowers are very intricate in design and emit a subtle, sweet fragrance. As in nature, the plants bloom in the spring in cultivation.



Figure 4.1079 (above) *Papillilabium beckleri* growing as a twig epiphyte at Ellenborough Falls, New South Wales, Australia.

Pelatantheria Ridl.

Publication: Ridley, H. N., 1896, *J. Linn. Soc., Bot.* 32: 371

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type Species: *Pelatantheria cristata* (Ridl.) Ridl., 1896, *J. Linn. Soc., Bot.* 32: 373.

Etymology: From *pelates* (neighbour) and *antheria* (flowers), possibly likening the flowers to those of related genera like *Cleisostoma* and *Sarcanthus*, or to the habit of the blooms, which are borne close to the stem.

Profile: A genus of 8 epiphytic species that occur in China, Japan, Korea, India (Assam, Bangladesh, East and West Himalayas), Nepal, the Andaman Islands, Thailand, Laos, Myanmar, Cambodia, Vietnam, Malaysia and Sumatra.

General plant morphology: *Plant* monopodial, stems long, climbing, sometimes branching at base or along stem, rooting along length, leaves distichous, numerous. *Leaf* short, fleshy, leathery. *Inflorescence* a congested raceme, short, axillary. *Flowers* single to few in number, resupinate, sepals and petals subsimilar, lip trilobed, mid-lobe larger, thick, spur with medium septum and calli on front and back walls, column broad, thick, with long and incurved stelids, pollinia 4.



Figure 4.1080 (above) The flowers of *Pelatantheria bicuspidata* are representative of the form of most species in the genus (Grower: J & L Orchids).

PELATANTHERIA

Pelatantheria scolopendrifolia (Makino) Aver.

Publication: *Bot. Zhurn. (Moscow & Leningrad)* 73: 432 (1988)

Etymology: From *scolopendra* (centipede) and *folia* (leaf), referring to the many short, narrow leaves.

Homotypic Synonyms: *Cleisostoma scolopendrifolium* (Makino) Garay, *Sarcanthus scolopendriifolius* Makino.

Morphology: Plant 1–1.6 cm wide, stem 1–1.5 mm thick, slender, creeping, branching freely, mat-forming, leaves distichous, imbricating, many in number, rooting at nodes along stem, roots proportionately large. Leaf to 0.8 cm long by up to 0.2 cm wide, conduplicate, linear, ensiform, apex obtuse, lamina semi-terete, dorsally sulcate, leathery, rigid, ventrally punctate. Inflorescence a congested raceme, abbreviated, few to several simultaneous inflorescences. Flower to 0.7 cm wide, to 2 in number, simultaneous, widely spreading to campanulate.

Range, elevation and habitat: *Pelatantheria scolopendrifolia* is found in China (provinces of Anhui, western Fujian, Jiangsu, Shandong, northeastern Sichuan and eastern Zhejiang), Japan (islands of Honshu, Shikoku and Kyushu) and North and South Korea. In China, it is found at elevations of 100–1000 m where it grows as an epiphyte on tree trunks, or as a lithophyte amongst lichens on rocks in shady forest. This species blooms during the spring and summer months in nature and is locally common. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots, but ensure humidity is relatively high. This species is not suited to potted to culture because of the climbing and mat-forming habit of the plant. *Temperature* warm to intermediate during spring to autumn; this species can take cool conditions during the winter months. *Light* bright diffused to light shade. *Watering* water freely from spring through autumn, but reduce frequency of waterings during the winter months. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing during winter.

Comments: A species that has been in cultivation for many years, *Pelatantheria scolopendrifolia* is probably known to most as *Cleisostoma scolopendrifolium*. The plant is quite attractive, with numerous short, alternating leaves, giving it a centipede-like appearance that accounts for the specific name. It becomes mat-forming over time, with numerous interlocking branches that grow over each other in every direction. This species can be shy to bloom, but it may be that plants are grown too warm; it comes from northern China, North and South Korea and much of Japan, all of which have cool to very cold winters. Flowering occurs in spring and summer in cultivation, as in nature.



Figure 4.1081 (above) *Pelatantheria scolopendrifolia* produces tiny, widely spreading flowers (Grower: Ginette Sanchou).



Figure 4.1082 (above) *Pelatantheria scolopendrifolia* forms dense mats of roots in time (Grower: Brad Cotten).

Penducella Luer & Thoele

Publication: Luer, C. A., & Thoele, L. T., 2010, *Orchid Digest* 74: 68

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Pleurothallidinae

Etymology: From the Latin *pendulus* (pendent one) and *cella* (lesser, somewhat), referring to the pendent plant habit.

Type species: *Lepanthes nummularia* Rchb.f., 1856, *Xenia Orchid* 1: 142 = *Penducella nummularia* (Rchb.f.) Luer, 2010, *Orchid Digest* 74: 70.

Homotypic synonyms: *Brachycladium* (Luer) Luer nom. illeg., *Neooreophilus* Archila, *Oreophilus* W.E.Higgins & Archila nom. illeg.

Profile: A medium-sized genus of approximately 40 usually epiphytic species. They occur in the Andes Mountains of Colombia, Ecuador, Peru, Bolivia and possibly northwestern Venezuela. These plants are generally found at middle to high elevations (1700–3150 m) in very wet forest, usually trailing in damp moss or hanging from the lower branches of trees, and even occasionally growing terrestrially on wet, mossy road embankments.

General plant morphology: *Plant* sympodial, long pendent or occasionally creeping, mat-forming, branching, rhizome 30–40 cm in length or longer, gradually repent, ascending to descending, enclosed in 2 lepanthiform sheaths, sheaths ciliate, ribbed, dilated at ostia, ramicauls spaced at short distances, leaves alternating, often partially overlapping, roots slender, originating near the base of branches or from nodes along rhizome. *Ramicaul* short (usually to 0.2 cm in length), barely ascending to erect, usually enclosed in one lepanthiform sheath, sheath ciliate, ribbed, dilated at ostia, leaf unifoliate, apical. *Leaf* minutely petiolate to sessile, small, sub-orbicular to narrowly elliptical, apex sub-acute to rounded, notched, mucronate, lamina spreading to slightly ascending in relation to ramicaul, glabrous or pubescent, sometimes ciliate, leathery. *Inflorescence* a raceme, peduncle shorter than leaf, ascending to spreading on leaf, from annulus on the ramicaul. *Flowers* few to many in number, successive, resupinate, dorsal sepal often larger than lateral sepals, convex to concave, lateral sepals connate to free or separate, petals often longer than broad, lip extremely variable in shape, without appendix (except *Penducella stalactites*), connate to base of column, column lacking foot, variable, pedicels short and inconspicuous, pollinia 2.

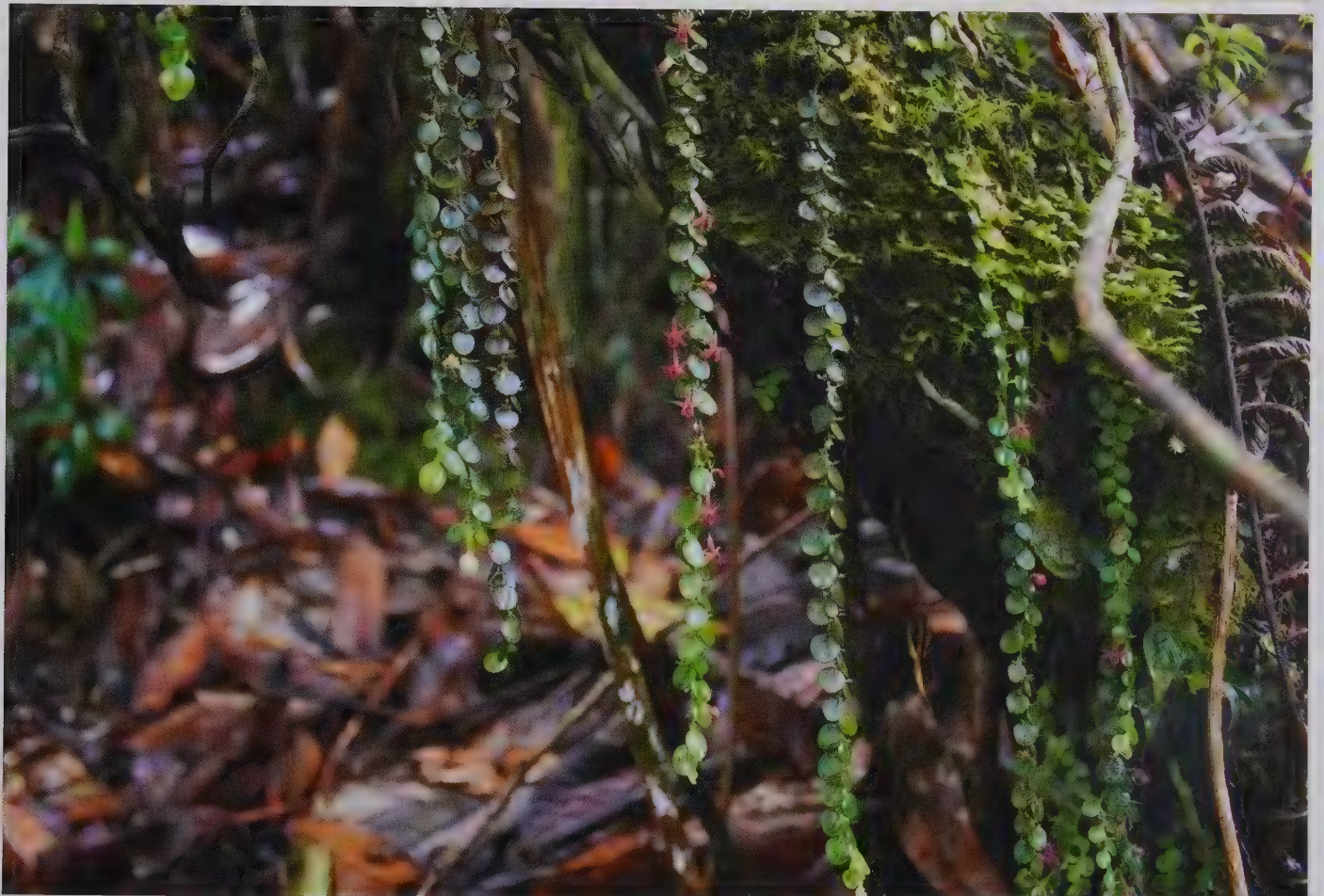
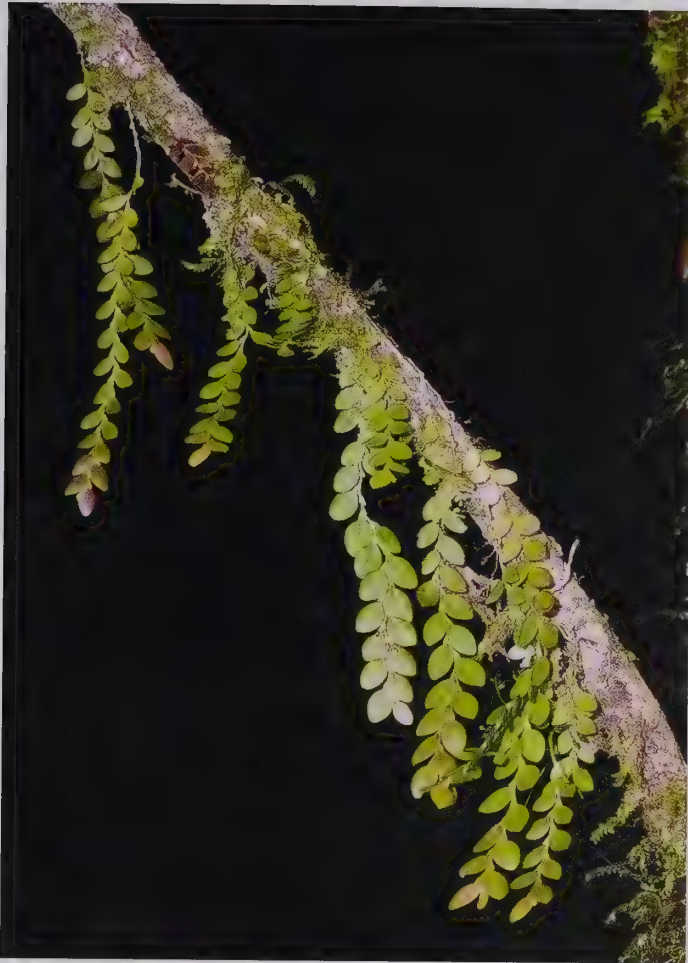
General culture notes: *Substrate* mount on flat pieces of cork oak, rough wood shingles or possibly tree fern plaques using New Zealand *Sphagnum* moss around the roots. These species are not suitable for potted culture due to the long, pendent nature of the plants. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, well drained, not wet. These species do not exhibit dormancy. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Penducella*, are prone to infection by bean yellow mosaic virus (BYMV), which is introduced by aphids. Ensure plants are kept free of these pests.

Comments: Although the species of *Penducella* are currently listed on the World Checklist as synonymous with the genus *Lepanthes*, this group is genetically distinct from the latter genus. In addition to clear morphological distinctions, two separate DNA studies have shown this group to have a close relationship to *Andinia* and to be quite distant from *Lepanthes* (Wilson & Jost, 2011; Pridgeon & Chase, 2001). As such, *Penducella* is accorded genus rank in this work.

Figure 4.1083 (facing page, above left) *Penducella* plants drape a narrow branch in Colombia (Photo: Sebastian Vieira).

Figure 4.1084 (facing page, above right) An unidentified flowering *Penducella* creeps along a mossy trunk in Colombia (Photo: Sebastian Vieira).

Figure 4.1085 (facing page, below) A related species, recently published as *Neooreophilus vieira-perezianus*, photographed *in situ* near Medellín, Colombia (Photo: Luiz Pérez).



PENDUCELLA

Penducella erepsis (Luer & Hirtz) Luer

Publication: *Orchid Digest* 74: 69 (2010)

Etymology: From the Greek *erepsis* (roof), referring to the large hooded dorsal sepal.

Homotypic synonyms: *Brachycladium erepse* (Luer & Hirtz) Luer, *Lepanthes erepsis* Luer and Hirtz, *Oreophilus erepsis* (Luer & Hirtz) Archila.

Morphology: Plant to 30 cm long or more, 0.3–0.5 cm between ramicauls, rooting from base of branches. Ramicaul to 0.2 cm long. Leaf 0.8–1.2 cm long by 0.4–0.6 cm wide, sessile, elliptical, apex sub-acute to obtuse, lamina leathery, long-white pubescent, veined darker green. Inflorescence a raceme, 0.1 cm in length, ascending. Flower 0.8–1 cm tall, single, dorsal sepal proportionately large, concave, forward pointing, with nine veins, lateral sepals connate for most of length, petals narrow, acute with pair of slender, acute, basal lobes, pedicel 0.1 cm long.

Range, elevation and habitat: *Penducella erepsis* occurs in Ecuador (province of Zamora-Chinchipec) and Peru (department of Cajamarca) at elevations of 2000–2500 m, where it grows epiphytically in cool, moist, mossy cloud forest. This species may bloom at any time of year. No records of conservation status could be found, but it is likely to be relatively common.

Culture recommendations: See general notes for the genus. Temperature cool.

Comments: *Penducella erepsis* is one of the more popular and available species of the genus. It is similar to at least two other congeners, *P. pilosella* and *P. villosa* (Lojtnant) Luer. All three of these fascinating plants have a proportionately large, veined dorsal sepal, but that of *P. erepsis* characteristically has 9 veins, in contrast to the 7 veins of the other two species. *Penducella erepsis* has narrow, acute petals with a pair of slender and acute lobes at the base; *P. pilosella* has narrowly linear to oblong-linear petals that lack basal lobes; and *P. villosa* also has narrow, but pubescent petals. *Penducella erepsis*, like the other species in this genus, is a handsome, chain-like plant that branches freely, forming sheets of pendent growths with age. The furry leaves are attractively veined with darker green. All three of the aforementioned species can bloom at any time of year in cultivation, and large plants may produce flowers almost continuously.



Figure 4.1086 (above) The flower of *Penducella erepsis* has a 9-veined dorsal sepal (Grower: John Leathers).



Figure 4.1087 (above) *Penducella erepsis* leaves and flowers are certainly both attractive (Grower: Ron Parsons).

PENDUCELLA

Penducella hippocrepica (Luer & R.Escobar) Luer

Publication: *Orchid Digest* 74: 70 (2010)

Etymology: From the Latin *hippo* (horse) and *crepicus* (shoe), in reference to the shape of the lip.

Homotypic synonyms: *Brachycladium hippocrepicum* (Luer & R.Escobar) Luer, *Lepanthes hippocrepica* Luer & R. Escobar, *Neoreophilus hippocrepicus* (Luer & R.Escobar) Archila, *Oreophilus hippocrepicus* (Luer & R.Escobar) Archila.

Morphology: *Plant* rhizome to 30 cm long or more, pendent, to 0.4 cm between ramicauls. *Ramicaul* to 0.2 cm long. *Leaf* 0.4–0.8 cm long by 0.4–0.6 cm wide, minutely petiolate, elliptical to orbicular, apex obtuse to rounded, lamina leathery, glabrous, margins sparsely ciliate. *Inflorescence* a raceme, to 0.2 cm in length, ascending. *Flower* to 0.8 cm tall, single, widely spreading, sepals reflexed, pedicel to 0.3 cm long.

Range, elevation and habitat: *Penducella hippocrepica* occurs in Colombia (departments of Antioquia and Risaralda) and Ecuador, in the Central Cordillera (provinces of Napo and Sucumbíos), where it grows epiphytically in cool, moist, mossy cloud forest at elevations between 1800–2400 m. This species may flower at any time of year. No records of conservation status could be found.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: When one sees the flowers of *Penducella hippocrepica*, it is easy to appreciate how they might be regarded as *Lepanthes*, as they are similar in form. Somewhat unusual are the swept-back sepals and the horseshoe-shaped lip that almost completely surrounds the column. While many of the species of *Penducella* have fuzzy leaves, those of *P. hippocrepica* are smooth except for their ciliate margins. Flowers can occur at any time of year in cultivation.



Figure 4.1088 (above) *Penducella hippocrepica* has fuzzy, *Lepanthes*-like flowers (Grower: Marni Turkel).



Figure 4.1089 (above) The flower of *Penducella hippocrepica* in profile (Grower: Marni Turkel).

PENDUCELLA

Penducella nummularia (Rchb.f.) Luer

Publication: *Orchid Digest* 74: 70 (2010)

Etymology: From the Latin *nummularias* (small coins), referring to the rounded shape of the leaves.

Homotypic synonyms: *Brachycladium nummularium* (Rchb.f.) Luer, *Lepanthes nummularia* Rchb.f., *Neooreophilus nummularius* (Rchb.f.) Archila, *Oreophilus nummularius* (Rchb.f.) Archila.

Morphology: Plant rhizome to 50 cm, creeping to pendent, 0.3–0.5 cm between ramicauls, vegetatively variable. *Ramicaul* to 0.1 cm long, enclosed in pubescent sheath. *Leaf* 0.3–1.2 cm long by 0.5–1.1 cm wide, minutely petiolate, elliptical to sub-orbicular, apex sub-acute to rounded, lamina leathery, glabrous. *Inflorescence* a congested raceme, to 0.5 cm long, peduncle to 0.2 cm, slender. *Flower* 0.3–0.5 cm tall, few to many in number, successive, widely spreading, lip tiny, variable in shape, column variable in shape, pedicel minute.

Range, elevation and habitat: *Penducella nummularia* occurs in Colombia (departments of Antioquia, Cauca and Santander), Ecuador (provinces of Carchi, Morona-Santiago, Napo, Pastaza, Pichincha, Sucumbíos, Tungurahua and Zamora-Chinchipe) and Peru (department of Amazonas) at elevations of 1600–2450 m. This species grows epiphytically in cool to cold, moist, mossy cloud forest, sometimes in the canopy, and may bloom at any time of year. No information on conservation status could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: *Penducella nummularia* is relatively widespread in the Andes Mountains, and this may be why it was the first of the genus to be collected and described. The leaves are smooth in texture and nearly round in outline, hence the specific epithet. It is certainly the most floriferous species of the genus seen by the authors, with numerous tiny, yet brightly coloured, *Lepanthes*-like flowers. The trait of flowering at any time of the year, in addition to the beautiful foliage, makes this a desirable addition to any collection.



Figure 4.1090 (above) *Penducella nummularia* is an attractive, freely flowering species (Grower: John Leathers).



Figure 4.1091 (above) *Penducella nummularia* plant exhibiting numerous spent inflorescences (Grower: John Leathers).

PENDUCELLA

Penducella pilosella (Rchb.f.) Luer

Publication: *Orchid Digest* 74: 71 (2010)

Etymology: From the Latin *pilosus* (covered with soft, distinct hairs) and the diminutive suffix *ella* (little), referring to the hairy leaves.

Homotypic synonyms: *Lepanthes pilosella* Rchb.f., *Brachycladium pilosellum* (Rchb.f.) Luer, *Oreophilus pilosellus* (Rchb.f.) Archila, *Neooreophilus pilosellus* (Rchb.f.) Archila.

Morphology: *Plant* pendent, branching, each branching rhizome up to 50 cm long, to 0.5 cm between ramicauls. *Ramicaul* to 0.2 cm long. *Leaf* 0.8–1.5 cm long by 0.5–0.7 cm wide, minutely petiolate, elliptical, apex sub-acute to obtuse, lamina leathery, pubescent to densely hairy, but sometimes glabrous. *Inflorescence* a congested raceme, peduncle to 0.2 cm in length, suberect. *Flower* 0.7–1 cm tall, few in number, successive, spreading, dorsal sepal proportionately large, concave, forward-pointing, with seven veins, petals narrowly linear to oblong, pedicel minute.

Range, elevation and habitat: *Penducella pilosella* is the most widespread and common species of the genus, occurring in Colombia (departments of Antioquia, Cauca, Cundinamarca, Nariño, Tolima and Valle del Cauca), Ecuador (provinces of Carchi, Imbabura and Pichincha) and Bolivia (department of Santa Cruz) at elevations of 1500–2600 m. Although there are no confirmed records from Peru, it is likely to occur there also. It grows epiphytically in shady, cool to cold, moist to wet forest and cloud forest. It may bloom at any time of the year.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

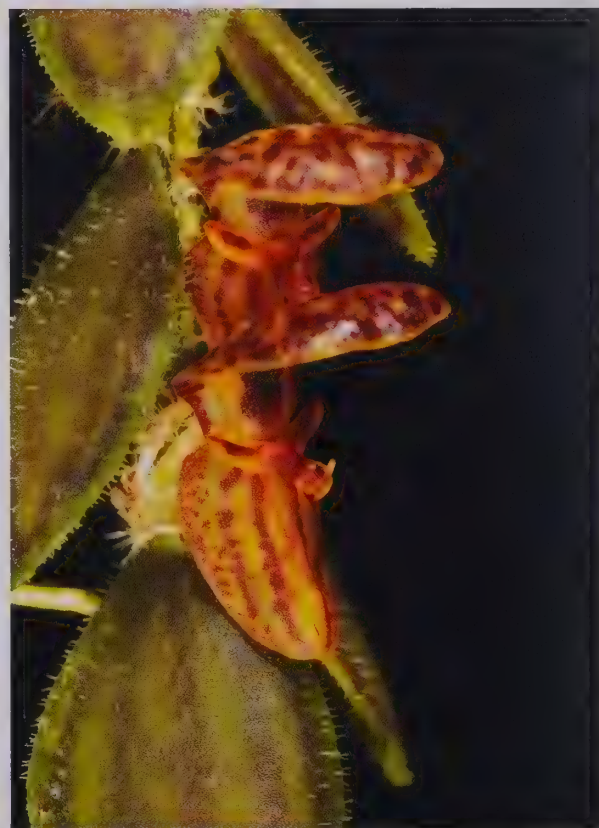
Comments: As mentioned in the entry for *Penducella erepsis*, *P. pilosella* is very similar to that species, as well as to *P. villosa*. Both *P. pilosella* and *P. villosa* have inflated, hooded dorsal sepals with 7 coloured veins, whereas *P. erepsis* has 9 veins. The petals of *P. villosa* are longer and pubescent, while those of *P. pilosella* are shorter, narrower, and not obviously fuzzy. These species are all worthy of space in a collection, not only for their attractive plants, but also for their often near-continuous blooming habit.



Figure 4.1092 (above) *Penducella pilosella* dorsal sepals are 7-veined and lack pubescence (Grower: John Leathers).



Figure 4.1093 (above) *Penducella villosa* has larger, slightly fuzzy petals (Grower: Andy's Orchids).

PENDUCELLA***Penducella platysepala*** (Luer & R.Escobar) Luer**Publication:** *Orchid Digest* 74: 71 (2010)**Etymology:** From the Greek *platy* (flat) and Latin *sepalum* (separate petal, meaning sepal), referring to the flat sepals.**Homotypic synonyms:** *Brachycladium platysepalum* (Luer & R.Escobar) Luer, *Lepanthes platysepala* Luer & R. Escobar, *Neooreophilus platysepalus* (Luer & R.Escobar) Archila, *Oreophilus platysepalus* (Luer & R.Escobar) Archila.**Morphology:** *Plant* pendent, branching, each branch to 50 cm, to 0.5 cm between ramicauls. *Ramicaul* to 0.2 cm long. *Leaf* 0.6–0.9 cm long by 0.4–0.5 cm wide, elliptical, apex sub-acute to obtuse, lamina leathery, veins darker green to reddish brown. *Inflorescence* a congested raceme, peduncle to 0.2 cm in length, ascending. *Flower* 0.7–0.9 cm tall, few in number, successive, widely spreading, dorsal sepal obovate, large, hooded, lateral sepals connate for much of length, petals narrow, pedicel minute.**Range, elevation and habitat:** *Penducella platysepala* occurs in the department of Antioquia, Colombia, and is considered common. It is found at elevations of 1900–2410 m. The type was collected growing epiphytically in a remnant forest east of Santo Domingo at 1920 m elevation. This species can bloom at anytime of year.**Culture recommendations:** See general notes for the genus. *Temperature* cool.**Comments:** Not as commonly seen in collections as some of the other species in this genus, *Penducella platysepala* has the same qualities that make it worth growing; the plants and flowers are attractive, and plants are generally floriferous. It is thought to be closely related to *P. pilosella*; the plants are indistinguishable, and the petals, lip and column are similarly shaped. The main difference is in the obovate dorsal sepal, which is spotted, not striped, and not hooded. *Penducella platysepala* may bloom at any time of year in cultivation.**Figure 4.1094 (above)** The flattened, spotted dorsal sepal of *Penducella platysepala* is distinctive (Grower: John Leathers).**Figure 4.1095 (above)** A pair of *Penducella platysepala* blooms (Grower: Hanging Gardens).

PENDUCELLA

Penducella stalactites (Luer & Hirtz) Luer

Publication: *Orchid Digest* 74: 71 (2010)

Etymology: Ultimately from the Greek *stalaktos* (dripping), referring to the hanging habit of the plant.

Homotypic synonyms: *Brachycladium stalactites* (Luer & Hirtz) Luer, *Lepanthes stalactites* Luer & Hirtz, *Neooreophilus stalactites* (Luer & Hirtz) Archila, *Oreophilus stalactites* (Luer & Hirtz) Archila.

Morphology: *Plant* large for the genus (possibly the largest), pendent, rhizome to 1 m in length, to 0.5 cm between ramicauls. *Ramicaul* 0.2 cm long, stout, enclosed in 2 sheaths. *Leaf* 0.9–1.6 cm long by 0.7–1.1 cm wide, minutely petiolate, elliptical to broadly ovate, apex sub-acute, apiculate, lamina partially overlapping, thickly leathery, ventrally punctate and often suffused lightly with purple, marginate. *Inflorescence* a congested raceme, to 0.3 cm in length, ascending. *Flower* to 0.5 cm tall, few in number, successive, widely spreading, petals transversely bilobed, pedicel minute.

Range, elevation and habitat: *Penducella stalactites* occurs in southwestern Ecuador (provinces of Azuay and Loja) and adjacent Peru (department of Piura) at elevations of 2650–3150 m. It grows epiphytically on large, mossy, horizontal tree limbs (including the undersides) in cold, wet, high montane forest where it is locally abundant. This species may bloom at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* cool to cold.

Comments: *Penducella stalactites* may be the longest-growing species of the genus, but that is relative. Whilst it could be argued that none of the species of *Penducella* are miniature in stature due to their eventual length, individual growths of the leaf and ramicaul certainly are. Not common in cultivation, this species is just as desirable as its relatives. As is typical for most *Penducella*, *P. stalactites* can bloom in any month in cultivation.



Figure 4.1096 (above) The attractive flower of *Penducella stalactites* (Grower: Marni Turkel).



Figure 4.1097 (above) This congener, *Penducella pendens*, has tiny flowers (Grower: Marni Turkel).

Phalaenopsis Blume

Publication: Blume, K. L. von, 1825, *Bijdr.*: 294

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Phalaenopsis amabilis* (L.) Blume, 1825, *Bijdr.*: 294.

Etymology: From the Greek *phalae* (moth) and *opsis* (appearance), referring to the appearance of the flowers of the type species.

Heterotypic synonyms: *Doritis* Lindl., *Grafia* A.D.Hawkes, *Grussia* M.Wolff, *Kingidium* P.F.Hunt, *Kingiella* Rolfe, *Lesliea* Seidenf., *Polychilos* Breda, Kuhl & Hasselt, *Polystylus* Hasselt ex Hassk, *Stauritis* Rchb.f., *Stauroglottis* Schauer, *Synadena* Raf.

Profile: A relatively large genus of approximately 60 species and several natural hybrids that range from India, throughout much of tropical and subtropical Asia and south to northeastern Australia. This genus is one of the most popular in the orchid family.

General morphology: *Plant* monopodial, epiphytic, lithophytic or terrestrial, stems usually short, leaves distichous, imbricating at base, few to several, some species deciduous in dry season or winter. *Leaf* oblong to broadly elliptic, fleshy to leathery, sometimes suffused with purple, several species with green spotted, silvery leaves with maroon ventrally. *Inflorescence* a semi-congested to distally congested raceme or panicle, erect to pendent, lateral, axillary, occasionally producing adventitious plantlets in some species. *Flower* tiny to large, few to many, resupinate, produced simultaneously or successively, often showy, sepals and petals free, subsimilar, spreading to widely spreading, lateral sepals usually larger than dorsal sepal, lip trilobed, with side-lobes usually erect, mid-lobe sometimes with pair of horn-like or thread-like projections at apex, column stout, pollinia 2 or 4, flowers often long lasting, some species fragrant.

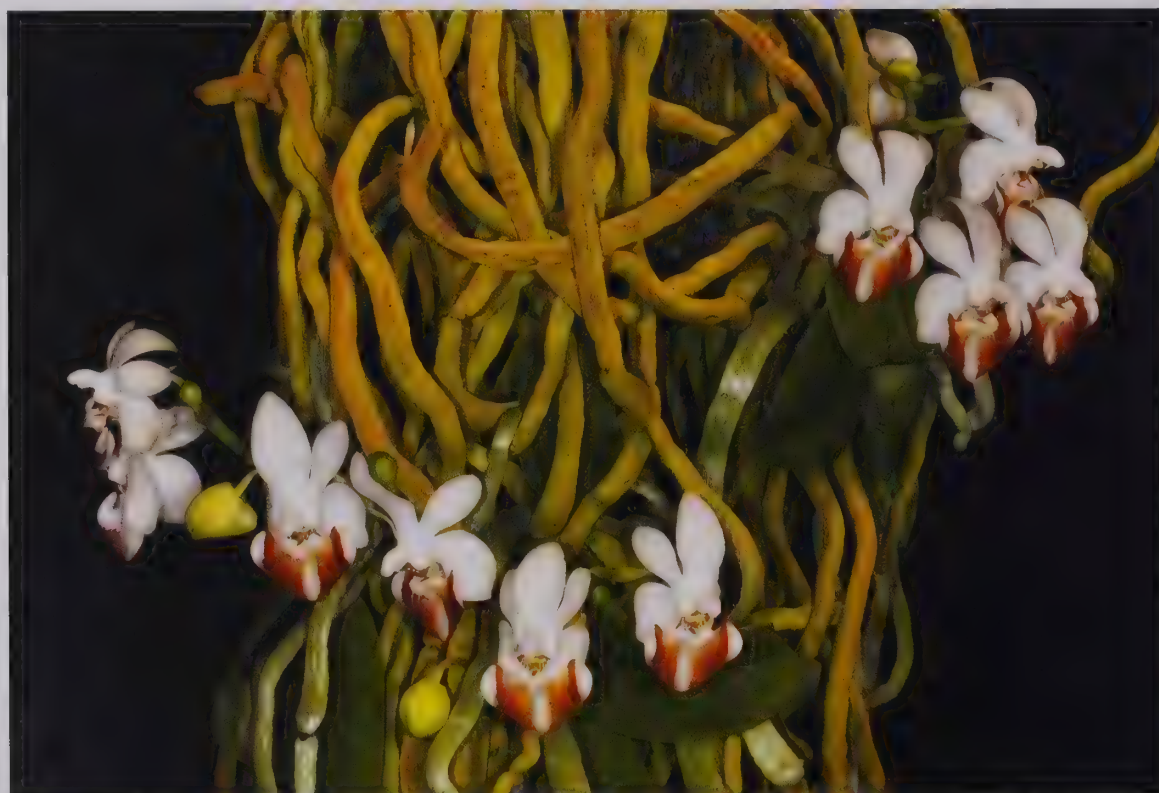


Figure 4.1098 (above) Leaves and flowers of *Phalaenopsis lobbii* emerge from a mat of tangled roots. Most plants of this taxon are of miniature stature (Grower: Cindy Hill).

Figure 4.1099 (facing page) The perfect little flowers of *Phalaenopsis gibbosa*, a species closely related to both *P. appendiculata* and *P. lobbii* (Grower: Marni Turkel).



PHALAEENOPSIS

Phalaenopsis appendiculata Carr

Publication: *Gard. Bull. Straits Settle.* 5: 16 (1929)

Etymology: From the Latin *appendiculatus* (with appendages), referring to the longitudinal rows of tooth-like structures lateral to the two central calli on the lip.

Homotypic synonyms: *Doritis appendiculata* (Carr) T. Yukawa & K. Kita, *Grussia appendiculata* (Carr) M. Wolff, *Polychilos appendiculata* (Carr) Shim.

Morphology: *Plant* to 12 cm wide, stem abbreviated, usually single, leaves 2–4 in number. *Leaf* to 7 cm long by up to 3.5 cm wide, shortly petiolate, elliptic to oblong-elliptic, apex acute to obtuse, lamina thinly leathery, margins sometimes slightly undulate. *Inflorescence* a raceme, peduncle to 2 cm (sometimes longer), 1–2 simultaneous inflorescences, spreading to slightly ascending. *Flower* 0.8–1 cm in diameter, 1 or rarely 2 open simultaneously, to 10 in number, successive. Flowers vary slightly in pattern and intensity of coloured stripes from pinkish-purple to rich purple.

Range, elevation and habitat: *Phalaenopsis appendiculata* is a rare species from Peninsular Malaysia, where it grows as an epiphyte on small branches and twigs of small trees, often near streams and rivers. It occurs in low elevation moist, tropical forest at approximately 200 m. For many years, this rare species was only known from Tembeling, in the state of Pahang. No bloom-time records could be found for this species.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture. *Temperature* warm. *Light* medium shade. *Watering* keep moist, but well-drained, not wet. This species may dry out briefly between waterings without harm. *Humidity* high. *Air movement* good. *Propagation* by seed, rarely by offsets. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency to every 2 to 3 weeks during winter.

Comments: Although the flowers of *Phalaenopsis appendiculata* are among the smallest in the genus, they are colourful little jewels. Bedecked with bold spots and stripes that contrast brightly against a white background, they are nothing less than stunning. For many years after its discovery, this species remained rare and expensive; fortunately it is now readily available and relatively affordable. In addition to the above-mentioned variations, there is a rare albino form that has been seen in cultivation. Plants in collections usually flower between mid-autumn and mid-spring.



Figure 4.1100 (above) The fine *Phalaenopsis appendiculata*, from Peninsular Malaysia (Grower: White Oak Orchids).

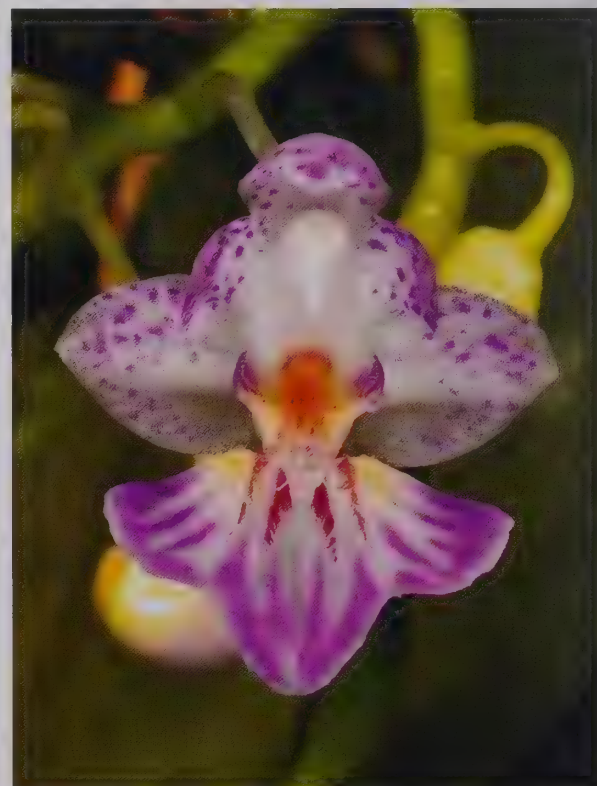


Figure 4.1101 (above) *Phalaenopsis appendiculata* flower detail (Grower: Tom Mudge).

Figure 4.1102 (facing page) *Phalaenopsis appendiculata* f. *alba* has predominantly white flowers (Grower: Tom Mudge).



PHALAEOPSIS

Phalaenopsis wilsonii Rolfe

Publication: *Bull. Misc. Inform. Kew* 1909: 65 (1909)

Etymology: Named for the original discoverer of the species, Ernest Henry Wilson (1876–1930), an English plant collector who introduced approximately two thousand Asian plant species to Western commerce. He later became keeper of the Arnold Arboretum.

Homotypic synonyms: *Doritis wilsonii* (Rolfe) T.Yukawa & K.Kita, *Kingidium wilsonii* (Rolfe) O.Gruss & Roellke, *Polychilos wilsonii* (Rolfe) Shim.

Heterotypic synonyms: *Phalaenopsis chuxiongensis* F.Y.Liu, *Phalaenopsis minor* F.Y.Liu, *Phalaenopsis wilsonii* f. *azurea* Z.J.Liu & Z.Z.Ru.

Morphology: Plant rarely to 15 cm wide, usually much smaller, stem abbreviated, leaves rarely to 5 in number, often deciduous in nature, roots long, numerous, extensive, flattened, warty. Leaf 6.5–8 cm long by 2.6–3 cm wide, without petiole, oblong to elliptic, apex acute, lamina somewhat fleshy, sometimes reddish-purple ventrally. Inflorescence a semi-congested raceme, to 20 cm in length, 1–2 simultaneous inflorescences, sub-erect to descending. Flower 2.5–3 cm wide, to 15 in number, simultaneous, lip mid-lobe obcordate, fragrant. Flowers vary in colour intensity from light to dark pink, sometimes with greenish highlights. The lip is fairly variable in shape, degree of spreading and colour, sometimes with faint to bold longitudinal stripes of white.

Range, elevation and habitat: *Phalaenopsis wilsonii* occurs in China, in the provinces of Guangxi (western), Guizhou (southwestern), Sichuan (southwestern), Xizang (southeastern) and Yunnan (northwestern to southeastern), as well as in Myanmar and northern Vietnam at elevations of 800–2200 m. It grows as an epiphyte on tree trunks, often low in stunted forest on steep slopes, as a lithophyte on damp rocks in forests or along valleys, as well as on limestone karst formations. At the higher end of its elevational range, plants survive temperatures close to freezing during the dry winter. Flowering occurs between March and July, at the end of the dry season. In Vietnam, *P. wilsonii* is an uncommon species, found growing in stunted forests at the tops of very dry limestone hills where it rarely develops leaves, flowering between March and May. Winter temperatures in this habitat drop to 5–10 °C (~50°F), with the coldest months being December and January. This species is considered threatened here, although its habitat at the top of vertical slopes and cliffs does much to prevent easy access to collectors (Leonid Averyanov, pers. comms., 2012).

Culture recommendations: Substrate mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture. Temperature intermediate during the growing season, cool during

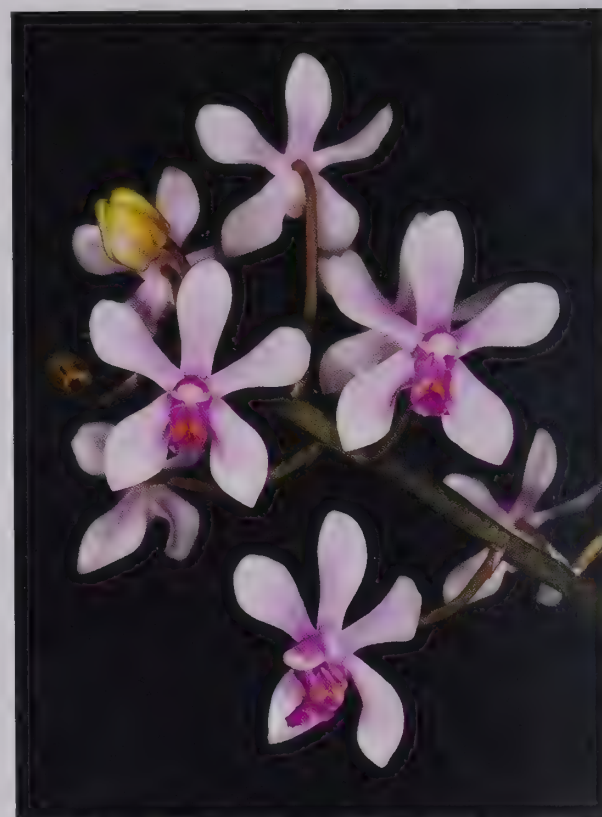


Figure 4.1103 (above) The elegant *Phalaenopsis wilsonii* hails from China (Grower: Tom Mudge).



Figure 4.1104 (above) *Phalaenopsis wilsonii* has delightfully fragrant blooms (Grower: Holger Perner/Hengduan Biotech).

PHALAEOPSIS

the winter dormancy. *Light* light shade to medium shade. *Watering* water freely through the spring to early autumn, allowing the roots to dry briefly. Reduce watering frequency as day length shortens, but mist roots every 7–10 days during winter dormancy. *Humidity* high during the growing season when plants are in leaf; average during the dormant season. *Air movement* good to brisk. *Propagation* seed, rarely by division from occasional side growths. *Fertilise* at 1/4 strength during the growing season. It is best to omit fertiliser during winter dormancy.

Comments: Incredibly fragrant with an intense, sweet smell, *Phalaenopsis wilsonii* is worth growing for this feature alone. The pink flowers are variable enough that plants are often sold under different names, including *P. chuxiongensis* and *P. minor*. Many plants imported as *P. honghenensis* prove to be *P. wilsonii* upon flowering; the former taxon is quite distinct, usually producing dark brown flowers with a dark pink lip. *Phalaenopsis honghenensis* has been known incorrectly in cultivation for several years as *P. braceana*. Another related, but confused species, is *P. hainanensis* (syn. *P. stobartiana*). The green flowers of the latter cannot be mistaken, and yet plants of *P. wilsonii* are often imported as *P. hainanensis*. All three species belong to the small section *Aphyllae* (meaning ‘without leaves’), often losing their leaves in the cold, dry winter. Indeed, they endure the coldest temperatures of any species in the genus. *Phalaenopsis wilsonii* blooms in the mid-winter to late spring in cultivation. There is a very rare, bluish form of *P. wilsonii*, called f. *azurea*.



Figure 4.1105 (above) A strikingly different, large flowered form of *Phalaenopsis wilsonii* with rich pink flowers (Grower: Tom Mudge).

Phloeophila Hoehne & Schltr.

Publication: Hoehne, F. C., & Schlechter, F. R. R., 1926, *Arch. Bot. São Paulo* 1: 199

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Pleurothallidinae

Type species: *Phloeophila nummularia* (Rchb.f.) Garay, 1974, *Orquideologia* 9: 118 (as *Phloeophila paulensis*).

Etymology: From the Greek *phloios* (bark) and *phila* (loving), referring to the epiphytic habit of this species.

Heterotypic synonyms: *Incaea* Luer, *Luerella* Braas, *Ophidion* Luer.

Profile: A genus of 11 accepted epiphytic and lithophytic species found in low elevation wet forest to cloud forest, at elevations to approximately 2000 m. They are found in Cuba, Jamaica, Belize, Honduras, Costa Rica, Colombia, Ecuador, Bolivia, Venezuela and Brazil.

General morphology: *Plant* tiny to small, sympodial, repent to clumping, erect to prostrate. *Ramicaul* short to much abbreviated, stout, sub-erect or ascending, enclosed by 1–3 imbricating sheaths. *Leaf* subsessile, elliptical to orbicular, apex obtuse, lamina leathery, sometimes verrucose. *Inflorescence* a raceme, borne from ramicaul. *Flower* single, tubular to barely opening, resupinate, sepals fleshy, partially connate, petals membranous, simple, lip oblong, usually verrucose, hinged to column foot, pollinia 2.

Comments: This genus is comprised of a highly disparate assortment of plant habits, a consequence of combining morphologically distinct species from several former genera. Many, including the authors, find this current taxonomy difficult to accept.



Figure 4.1106 (above) The cryptic looking flowers of *Phloeophila cymbula*, a rare species in cultivation (Grower: Marni Turkel).

PHLOEOPHILA

Phloeophila peperomioides (Ames) Garay

Publication: *Orquideologia* 9: 118 (1974)

Etymology: Referring to the resemblance of the foliage of this plant to some species of *Peperomia* (Piperaceae).

Homotypic synonyms: *Pleurothallis peperomioides* Ames, *Specklinia peperomioides* (Ames) Lue.

Morphology: *Plant* very small, repent, rhizome proportionately stout, to 10 cm in length, much branched, mat-forming. *Ramicaul* to 1 mm long, stout, sub-erect, sheathed, 0.2–0.3 cm between ramicauls. *Leaf* 0.3–0.6 cm long, including petiole, by 0.2–0.5 cm wide, elliptical to sub-orbicular, apex obtuse to rounded, lamina spreading to slightly ascending, nearly adpressed to substrate, succulent, thickly leathery, reticulate-rugose. *Inflorescence* a raceme, usually less than 1.5 mm long, sheath glandular red-pubescent. *Flower* small, but proportionately large in relation to plant, to 0.5 cm long, single, not spreading, tubular sepals glandular pubescent on exterior, pedicel minute.

Range, elevation and habitat: *Phloeophila peperomioides* occurs in southern Mexico, Honduras, Belize, Costa Rica (province of Cartago) and Panama (province of Chepo) at elevations ranging from 350–2400 m. It grows epiphytically in low, moist, montane forest to high elevation cloud forest. No bloom-time records could be found, but this species is likely to flower at any time of year. In southern Mexico this species is found on twigs in the crowns of trees in rain and cloud forest, but it has also been collected in montane elfin forests. It is considered rare in that country.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood and rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss around the roots. If no moss is used, ensure that humidity is high. This species is not suited to potted culture due to its diminutive size and creeping, mat-forming habit. *Temperature* intermediate to cool. *Light* light shade to medium shade. *Watering* keep moist, but well-drained, not wet. This species may be allowed to dry out briefly between waterings. *Humidity* high. *Air movement* good to brisk. *Propagation* easily by division or seed. *Fertilise* at 1/4 strength. *Phloeophila* is prone to bean yellow mosaic virus, a pathogen spread by aphids. Ensure that plants are kept free of these pests.

Comments: Though rarely seen in cultivation, the tiny plants of *Phloeophila peperomioides* are extremely charming, with succulent, pill-like leaves that are nearly round in outline and attractively textured. The plants branch freely, forming small mats, the foliage alternating along the rhizome and partially overlapping. The fuzzy, tubular flowers are also small, though larger than the leaves that bear them, and only open at the apex. *Phloeophila peperomioides* can be shy to bloom, but may flower at any time of the year.



Figure 4.1107 (above) The fuzzy *Phloeophila peperomioides* flower opens at its apex (Grower: Phil & Ann Jesup).



Figure 4.1108 (above) *Phloeophila peperomioides* growing *in situ* in Costa Rica (Photo: Daniel Jimenez).

Figure 4.1109 (overleaf) A pair of *Phloeophila cymbula* flowers (Grower: Marni Turkel).



PHLOEOPHILA***Phloeophila pleurothallopsis*** (Kraenzl.) Pridgeon & M.W.Chase**Publication:** *Lindleyana* 16: 254 (2001)**Etymology:** From *Pleurothallis* and Greek *opsis* (like), referring to the supposed resemblance of this plant to those of the genus *Pleurothallis*.**Homotypic synonyms:** *Cryptophoranthus pleurothallopsis* Kraenzl., *Ophidion pleurothallopsis* (Kraenzl.) Luer.**Heterotypic synonym:** *Cryptophoranthus auriculatus* Garay.**Morphology:** *Plant* 4–15 cm tall, clumping, branching, erect. *Ramicaul* 1–6 cm tall, erect. *Leaf* 3–9 cm long, including 0.5–2 cm petiole, by 0.9–2.5 cm wide, elliptical, apex acute, lamina erect, leathery. *Inflorescence* a raceme, up to 8 cm in length, slender, sub-erect to descending, inflorescence elongating slightly between flowers, borne near apex of ramicaul. *Flower* to 1 cm long, to 8 in number, singly successive, nodding, nearly closed, lateral sepals connate to form synsepal, sepal apices connate, forming small aperture on either side, petals, lip, column visible within aperture, pedicels 0.3–0.8 cm.**Range, elevation and habitat:** *Phloeophila pleurothallopsis* occurs in Panama (province of Darién), Colombia (departments of Antioquia, Nariño and Valle del Cauca), Venezuela (state of Bolívar), Ecuador (provinces of Esmeraldas, Imbabura, Morona-Santiago, Napo and Zamora-Chinchipe) and Bolivia (departments of Cochabamba and La Paz). It grows at elevations of 600–2800 m, as an epiphyte in dense, wet montane forest. This species is relatively common throughout the Andes Mountains, and it is quite likely that it also exists in Peru. No confirmed bloom-time records could be found, but it is likely that this species can flower in any month in nature.**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. This species may also be grown potted in small pots using moss or a fine bark mix. *Temperature* intermediate to cool. *Light* light shade to medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength. Pleurothallids, including *Phloeophila*, are prone to bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.**Comments:** *Phloeophila pleurothallopsis* has gone through a number of name changes over time. Occasionally, one will see plants in collections still labelled as either *Ophidion* or *Cryptophoranthus*. The former genus is the more recent of the two, and included both this species and its closest relatives, *P. cunabulum* (Luer & R. Escobar) Pridgeon & M.W. Chase, *P. cymbula* (Luer) Pridgeon & M.W. Chase and *P. dasyglossa* (Luer & R. Escobar) Pridgeon & M.W. Chase. How these taxa fit within *Phloeophila* with species such as *P. peperomioides* is a true puzzle, since neither plant nor flower are remotely similar. *Phloeophila pleurothallopsis*, along with other former *Ophidion*, are morphologically closer to species of *Zootrophion*, with their similar plant form and closed**Figure 4.1110 (above)** *Phloeophila pleurothallopsis* has sombre flowers of striking form (Grower: Peter & Helen Jackson).

PHLOEOPHILA

flowers, but bear larger window-like apertures on either side of the sepals. The overall flower form of *P. pleurothallopsis* is reminiscent of a dark fruit, or drupe. This species is relatively available, and flowers between mid-spring to mid-summer in cultivation.

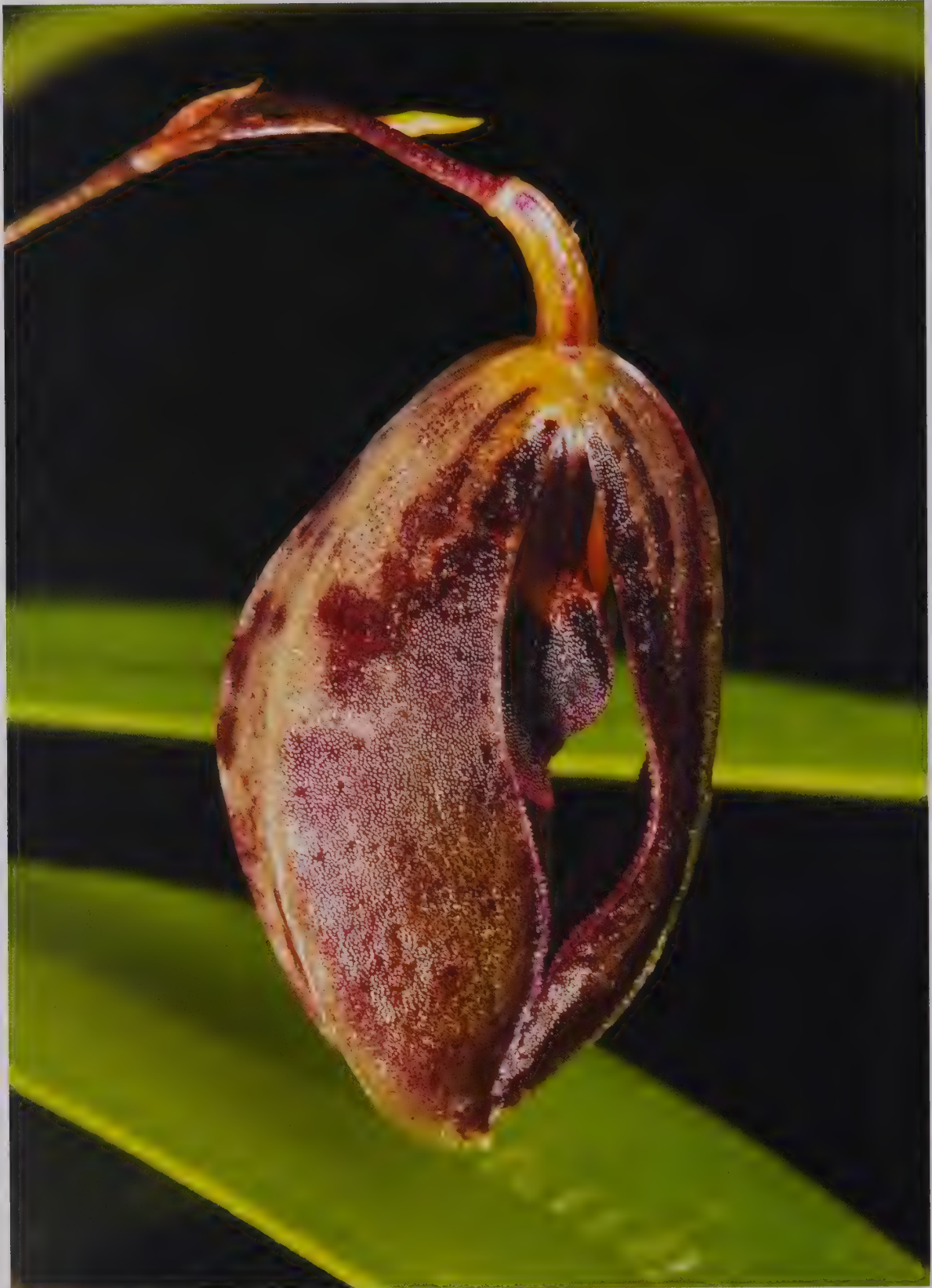


Figure 4.1111 (above) The handsome, pendent bloom of *Phlocophila* cf. *pleurothallopsis* (Grower: Ginette Sanchou).

Phymatidium Lindl.

Publication: Lindley, J., 1833, *Gen. Sp. Orchid. Pl.*: 209

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Ornithocephalinae)

Type species: *Phymatidium delicatulum* Lindl., 1833, *Gen. Sp. Orchid. Pl.*: 310.

Etymology: From the Greek *phyma* (tumour or swelling), with the diminutive suffix *idium*, probably in reference to the often thick and swollen base of the column (tabula infrastigmatica).

Heterotypic synonym: *Phymatidiopsis* Szlach., *Polish Bot. J.* 51: 37 (2006).

Profile: A genus of approximately 10 sympodial or monopodial, epiphytic species that grow on forest trees and shrubs, frequently in cultivated and disturbed areas. They are found in southeastern Brazil, northeastern Argentina and northern Uruguay at elevations of 150–1850 m.

Morphology: *Plant* miniature, epiphytic, usually clumping, ascending, rhizome branching, roots terete, glabrous or papillose, few to many in number. *Pseudobulb* absent, stem abbreviate, inconspicuous to rarely elongate, terete, leaves few to many in number, forming dense, irregular spirals along rhizome. *Leaf* usually somewhat falcate to linear-subulate, rarely arcuate, usually somewhat asymmetric, oval to triquetrous in cross section, apex acute or acuminate, erect or spreading, leathery, rarely soft and slightly fleshy. *Inflorescence* a raceme, one to many simultaneous, laxly flowered, peduncle usually angular to somewhat elliptic in cross-section, flexuous, axillary, occasionally producing adventitious plantlets. *Flower* small, few to many, usually resupinate, sepals and petals free, subsimilar, membranous, variable in shape, lip free, usually deflexed, convex, column short, ovary pedicellate, pollinia 4. Flowers often white with green centre.



Figure 4.1112 (above) *Phymatidium falcifolium* observed *in situ*, Macaé de Cima, Rio de Janeiro state, Brazil, at an elevation of approximately 100 m. It was found in a moist forest with a moderately dense canopy, growing low on the trunk of a small tree (Photo: Ron Kaufmann).

PHYMATIDIUM

Phymatidium delicatulum Lindl.

Publication: *Gen. Sp. Orchid. Pl.*: 310 (1833)

Etymology: From the Latin *delicatus* (delicate), referring to the diminutive plant.

Morphology: *Plant* to 2 cm tall, fan-like, clumping, roots extensive, fine. *Stem* to 1.5 cm tall, leaves distichous, to 8 in number. *Leaf* to 1.5 cm long by 0.15 cm wide, ensiform, falcate, apex acute, lamina subulate, semi-terete, rigid, fleshy, often twisted and asymmetric. *Inflorescence* a raceme, to 10 cm in length, few to many simultaneous inflorescences, angular with ridges, erect (in relationship to plant) to horizontal, axillary, bracts prominent, large. *Flower* to 0.5 cm in diameter, to 7 in number, simultaneous, resupinate.

Range, elevation and habitat: *Phymatidium delicatulum* occurs in Brazil (states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Espírito Santo and Bahia) and northern Argentina (province of Misiones). It grows as an epiphyte in situations of high humidity, deep shade and low air movement. It is often embedded in lichens and mosses on the twigs and small branches of shrubs and trees near river margins in primary forest, as well as in disturbed areas, secondary forest and even on cultivated trees, particularly Myrtaceae, including *Psidium guajava* (guava). Plants occur from near sea level to 1400 m. This species is encountered only occasionally, but could be more common than believed as it is easily overlooked in nature. Flowering occurs in March and April, as well as in October and November.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species can potentially be grown in small pots with moss or a fine bark mix, but the authors have never seen this species cultivated in pots. *Temperature* warm to intermediate. *Light* medium to heavy shade. Too much light may disfigure or possibly kill the plant. *Watering* water frequently, keep well-drained, not wet. *Humidity* high. *Air movement* low to good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing during winter.

Comments: Less common in cultivation than *Phymatidium falcifolium*, *P. delicatulum* has a smaller, more gracile form, hence the specific name. The inflorescence is proportionately large, with somewhat zigzagging bracts, and mature plants can be quite floriferous, with numerous simultaneous spikes, each bearing several flowers. There are two varieties of *P. delicatulum*, the nominate race and the variety *curvisepalum* Toscano, the latter being said to differ in the general shape of the column and its basal swelling (tabula infrastigmatica), as well as in the orientation of the sepals and petals, which are upward-pointing. Flowering in cultivation often occurs in mid- to late summer.



Figure 4.1113 (above) The fuzzy *Phymatidium delicatulum* flower opens at its apex (Grower: Marni Turkel).



Figure 4.1114 (above) A species of *Phymatidium*, possibly *P. hysteroanthum* Barb. Rodr., in situ, municipality of Ribeirão Grande, São Paulo, Brazil, at 700 m elevation. This plant was growing in an open area, in near full sun, in the same area as *Acianthera sonderiana*. The habitat is characterised by high air humidity, rain and fog year round, with the majority of rainfall in the summer; 200–300 cm per year. This species is often found growing on twigs of *Psidium guajava* and *P. cattleianum* (Photo: Leonardo Desordi Lobo).



Figure 4.1115 (above) *Phymatidium delicatulum* in situ, semi-deciduous forest, Serra do Japi, municipality of Jundiaí, São Paulo, Brazil, at 780 m elevation. This species is growing on *Campomanesia nerriflora* in high light. In the Serra do Japi, the winters are dry and cold, and the summers hot and wet. Annual precipitation amounts to approximately 140 cm (Photo: Leonardo Desordi Lobo).

PHYMATIDIUM

Phymatidium falcifolium Lindl.

Publication: *Gen. Sp. Orchid. Pl.*: 210 (1833)

Etymology: From the Latin *falx* (sickle) and *folium* (leaf), referring to knife-like leaves.

Heterotypic synonyms: *Phymatidium tillandsioides* Barb.Rodr., *Phymatidium lopesii* Ruschi.

Morphology: *Plant* 3–7 cm tall (individual growths), densely clumping, tufted, rhizome much branched, leaves spirally arranged, many in number. *Stem* short, ascending. *Leaf* to 7 cm long by 0.15 cm wide (to 0.4 cm at base), narrowly linear-lanceolate, dorsiventrally flattened, apex acute, acuminate, lamina straight to arcuate, soft, flexible, slightly fleshy, twisted. *Inflorescence* a somewhat loose-flowered raceme, to 11 cm in length, few to several simultaneous inflorescences, with subtending bracts, erect to spreading, axillary. *Flower* 0.5–0.8 cm in diameter, to 10 in number, simultaneous, non-resupinate, spreading.

Range, elevation and habitat: *Phymatidium falcifolium* occurs in southeastern Brazil, in the states of Santa Catarina, Paraná, São Paulo, Rio de Janeiro and Espírito Santo, at elevations between sea level and 1000 m. It grows as a relatively common low-level epiphyte on trees and shrubs, often near the edges of rivers and waterfalls in dark, humid forests, in shady, low air movement situations. Flowering occurs in mid- to late summer in nature.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species can also be grown potted in small pots with moss or a fine bark mix, but it is probably better suited to mounting. *Temperature* warm to intermediate. *Light* medium shade. *Watering* water frequently, soil should remain well-drained, not wet. *Humidity* high. *Air movement* low to good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing during winter.

Comments: Looking more like a bromeliad of the genus *Tillandsia*, many people are surprised to learn that *Phymatidium falcifolium* is actually an orchid. When in flower, however, the small, delicate, intricate blooms reveal its true nature. It is unfortunate that the aptly descriptive synonym *Phymatidium tillandsioides* cannot be used. This species is perfect for specimen culture as it clumps freely, forming beautiful, compact mounds of soft, long, narrow foliage. Further, when in bloom, it is nothing short of wonderful, each growth producing several inflorescences of numerous flowers, presenting a great floral display. It has a fairly wide range of bloom-times in cultivation, flowering anywhere from early summer to early winter, but occasionally at other times as well.



Figure 4.1116 (above) The delicate inflorescences of *Phymatidium falcifolium* are a pretty sight (Grower: Ron Parsons).



Figure 4.1117 (above left) A series of *Phymatidium falcifolium* flowers in detail (Grower: Mary Gerritsen).

Figure 4.1118 (above right) One of many *Phymatidium falcifolium* flower stems from a cultivated plant (Grower: White Oak Orchids).

Figure 4.1119 (below) A mounted *Phymatidium falcifolium* specimen blooming profusely (Grower: Hanging Gardens).

Platyrrhiza Barb.Rodr.

Publication: Barbosa Rodrigues, J., 1882, *Gen. Spec. Orchid.* 2: 230

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Ornithocephalinae)

Type species: *Platyrrhiza quadricolor* Barb.Rodr., 1882, *Gen. Spec. Orchid.* 2: 231.

Etymology: From the Greek *platys* (broad) and *rhiza* (root), referring to the unusually, broad, flat roots of the type species.

Profile: A monotypic epiphytic genus endemic to southeastern Brazil.

General morphology: *Plant* sympodial, miniature, leaves loosely fan-shaped. *Inflorescence* a raceme, lateral from base of pseudobulb, axillary between leafy bracts. *Flower* sepals and petals subsimilar, free, widely spreading to reflexed, lip three-lobed, column elongate, terete, dilated distally, foot short with pair of erect teeth, pollinia 4.



Figure 4.1120 (above) The slightly ascending inflorescences of *Platyrrhiza quadricolor* are architecturally pleasing, and make for a wonderful display when in full bloom, as pictured (Grower: Ron Parsons).

PLATYRHIZA***Platyrhiza quadricolor*** Barb.Rodr.**Publication:** *Gen. Spec. Orchid.* 2: 231 (1882)**Etymology:** from the Latin *quadri* (four) and *color* (colour), four colours, referring to the flowers.**Heterotypic synonym:** *Platyrhiza juergensii* Schltr.**Morphology:** *Plant* to 2.5 cm tall, clumping, erect to sub-erect, rhizome branching. *Pseudobulb* small, ovoid, usually obscured by 2–4 subtending, leafy bracts, leaf apical, unifoliate. *Leaf* to 2 cm long by 0.6 cm wide, sessile, lanceolate to elliptic-lanceolate to ovate, apex acute to acuminate, lamina sub-erect to spreading, dorsi-ventrally flattened, leathery. *Inflorescence* a raceme, to 6 cm in length, proportionately long, 1–3 simultaneous inflorescences, slightly ascending to spreading. *Flower* to 0.7 cm in diameter, proportionately large, to 13 in number (occasionally more), simultaneous, resupinate, widely spreading, column proportionately large, somewhat trumpet-shaped, with lateral appendages.**Range, elevation and habitat:** *Platyrhiza quadricolor* is endemic to southeastern Brazil, in the states of São Paulo, Rio de Janeiro, Santa Catarina and Rio Grande do Sul, at elevations of 150–1000 m. It grows as a low-level epiphyte on trees and shrubs in Atlantic rainforest under shady conditions. No flowering records are known for this species in nature, but it is probable that plants bloom in the spring and summer months, as they do in cultivation. No information on conservation status was available.**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots, depending on humidity. This species is not suited to potted culture; the roots require good air circulation and dislike continuous moisture. *Temperature* warm to intermediate. *Light* medium shade. *Watering* water frequently, ensure excellent drainage, do not keep wet. Keep plants slightly drier during the winter months. *Humidity* high. *Air movement* good. *Propagation* occasionally by division, or seed. *Fertilise* at 1/4 strength. It is probably best to reduce or omit fertiliser in the winter months.**Comments:** A truly exciting and desirable species, *Platyrhiza quadricolor* has proportionately large floral parts; it has prominent columns on surprisingly sizable flowers, borne on relatively long spikes, all from a rather diminutive plant. The greenish-yellow flowers are of a complex and unusual structure, and are different enough from its relatives, including *Centroglossa*, *Chytroglossa*, *Hintonella*, *Rauhiella*, *Thysanoglossa* and *Zygostates*, to have placed the taxon within a genus of its own. Still uncommon to rare in cultivation, it is hoped that plants will become more readily available. Flowering in cultivation occurs between early spring and late summer.**Figure 4.1121 (above)** The striking and colourful blooms of the monotypic *Platyrhiza quadricolor* (Grower: Ron Parsons).

Platystele Schltr.

Publication: Schlechter, F. R. R., 1910, *Repert. Spec. Nov. Regni Veg.* 8: 565

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Platystele compacta* (Ames) Ames, 1922, *Proc. Biol. Soc. Wash.* 35: 85.

Etymology: From the Greek *platys* (broad, flat) and *stele* (column), referring to the column of the type species.

Profile: A large genus of over 90 epiphytic, lithophytic or terrestrial plants from southern Mexico through Central America, as well as South America as far as southern Brazil and Bolivia. *Platystele* also occur in the Caribbean in Cuba and Trinidad and Tobago. Species of this genus occur from wet, lowland tropical forest to cloud and subpáramo forest at elevations between near sea level and 3200 m.

General morphology: *Plant* sympodial, tiny to small, erect, clumping or shortly repent, rhizome branching freely. *Ramicaul* shorter than leaves, slender, erect, enclosed in sheaths, unifoliate. *Leaf* petiolate, leathery, fleshy. *Inflorescence* a raceme, filiform, sometimes flexuous, borne laterally from ramicaul, emerging with an annulus, flowers subtended by tubular bracts. *Flower* minute to small, few to many in number, resupinate, sepals and petals usually widely spreading, sepals free, lateral sepals sometimes connate at base, sometimes with tails, thin textured, lip tiny, fleshy, entire, base joined to the column foot, pollinia 2.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species may also be grown in tiny pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Platystele*, are prone to infection by bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1122 (above) A veritable globe of leaves and flowers formed by a mounted specimen plant of *Platystele repens* 'Joan'. The grower of this plant won two Certificates of Cultural Excellence, the highest award for culture, from the American Orchid Society, one in 2007, with 91 points, and one in 2008, with 95 points (Grower: Howard Gunn).



Figure 4.1123 (above) An as yet unidentified species of *Platystele* photographed *in situ* amongst mosses in Ecuador (Photo: Andreas Kay).

PLATYSTELE***Platystele calantha*** P.Ortiz**Publication:** *Orquideologia* 12: 138 (1977, publ. 1978)**Etymology:** From the Greek *calo* (beautiful) and *anthos* (flower), referring to the attractive flowers.**Morphology:** *Plant* 1.8–3 cm tall, densely clumping. *Ramicaul* 0.3–0.5 cm long. *Leaf* 1.5–2.5 cm long by 0.4–0.6 cm wide, tapering, narrowly cuneate into indistinct petiole, 0.3–0.5 cm long, apex sub-acute, lamina erect, narrowly elliptical. *Inflorescence* a congested raceme, to 2.5 cm in length including 1.5 cm peduncle, erect to sub-erect. *Flower* to 1 cm tall, proportionately large, several in number, singly successive, pedicels to 0.4 cm.**Range, elevation and habitat:** *Platystele calantha* occurs in Colombia (departments of Antioquia, Chocó and Valle del Cauca) and northwestern Ecuador (province of Esmeraldas), where it grows epiphytically in wet montane and cloud forest at elevations between 800 and 2050 m. There is a bloom-time record for August, but it is probable that flowering can occur at any time. Conservation status unknown.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** *Platystele calantha* has lovely, translucent flowers with a crystalline texture. Not at all common in cultivation, it is highly recommended to all collectors of miniature orchids. Although the bloom is proportionately large, it is definitely one that is best appreciated with the help of a hand lens. The authors have noted that flowering occurs between mid-summer and mid-autumn in cultivation, but it is likely that this species will also bloom at other times.**Figure 4.1124 (above)** The translucent flower of *Platystele calantha* (Grower: Marni Turkel).**Figure 4.1125 (above)** *Platystele calantha* produces blooms of up to 1 cm across (Grower: J & L Orchids).

PLATYSTELE

Platystele densiflora P.Ortiz

Publication: *Orquideologia* 12: 140 (1977, publ. 1978)

Etymology: From the Latin *densi* (dense) and *florus* (flowers), referring to the form of the inflorescence.

Morphology: *Plant* 2.5–7 cm tall, densely clumping. *Ramicaul* 0.3–1.2 cm long. *Leaf* 2.5–6 cm long by 0.6–1.1 cm wide, minutely petiolate, elliptic-obovate, apex sub-acute, erect to sub-erect. *Inflorescence* a raceme, to 45 cm in length, including 6–8 cm peduncle, erect to sub-erect. *Flower* to 0.5 cm tall, several to many in number, successive, with approximately 15 or more open simultaneously, pedicels to 0.2 cm.

Range, elevation and habitat: *Platystele densiflora* is a locally abundant Colombian endemic, found in the department of Antioquia (municipality of Cocorné) at elevations of approximately 1900 m, where it grows epiphytically in cool, moist cloud forest.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: *Platystele densiflora* is a very rewarding, floriferous species that grows easily under the right conditions and branches freely to form clumps. The inflorescences, though successive, bear many open flowers at once, and bloom for many weeks. The reddish, starry flowers are tightly packed and held on erect spikes easily visible above the leaves. Flowering in cultivation has been noted both in early to mid-summer as well as mid- to late autumn. It is likely to flower at other times.



Figure 4.1126 (above) The *Platystele densiflora* inflorescence can be particularly striking (Grower: John Leathers).



Figure 4.1127 (above) The closely ranked, starry flowers of *Platystele densiflora* (Grower: Marni Turkel).

PLATYSTELE

Platystele lancilabris (Rchb.f.) Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 19: 102 (1923)

Etymology: From the Latin *lanci* (lanceolate) and *labris* (lip), referring to the shape of the labellum.

Homotypic synonyms: *Pleurothallis lancilabris* (Rchb.f.) Schltr., *Stelis lancilabris* Rchb.f.

Morphology: Plant to 4 cm tall, densely clumping. *Ramicaul* to 1 cm tall. *Leaf* to 3 cm long by 0.5 cm wide, petiolate indistinct, 0.3–1 cm in length, lamina narrowly elliptic-obovate, apex sub-acute to obtuse. *Inflorescence* a loose raceme, to 8 cm in length, erect, not flexuous. *Flower* to 0.4 cm tall, several, simultaneous, translucent, lip ovate, with large glenion (a central, soft tissue structure) at base, greenish yellow to reddish.

Range, elevation and habitat: *Platystele lancilabris* is endemic to Costa Rica, in the provinces of Heredia, Cartago and San José, where it grows as an epiphyte in cloud forest at elevations of 1500–2000 m. This species may bloom at any time in nature, and can be locally common.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A floriferous species, *Platystele lancilabris* is infrequently seen in collections, but extremely satisfying to grow. It is quite similar to *P. oxyglossa*, with which it is often confused. *Platystele lancilabris* differs from the latter in that it is a larger plant with erect, simultaneous, several-flowered inflorescences that are not flexuous, petals and sepals that are acute, not acuminate and a ovate, a yellow-green lip with a large glenion at the base, and a range that is restricted to Costa Rica. On the other hand, the highly variable *P. oxyglossa* is a smaller plant with a somewhat flexuous and successively flowered inflorescence, sepals and petals that are acuminate and longer, a lip that is acuminate and reddish-purple in colour, and a distribution that is the widest in the genus; it is known from Mexico through Central America, Colombia south to Bolivia, and Venezuela and Brazil. Interestingly, the plant illustrated has characteristics of both species. The inflorescence is not flexuous, but is successively flowering, while the lip is ovate, but reddish in colour. *Platystele lancilabris* can flower at any time in cultivation.



Figure 4.1128 (above) *Platystele lancilabris* is free flowering and attractive (Grower: John Leathers).



Figure 4.1129 (above) An unidentified *Platystele* species, similar to *P. lancilabris*, but with an oblong labellum (Grower: San Francisco Conservatory of Flowers).

PLATYSTELE***Platystele ortiziana*** Luer & R.Escobar**Publication:** *Monogr. Syst. Bot. Missouri Bot. Gard.* 38: 80 (1990)**Etymology:** Named in honour of the late Padre Pedro Ortiz Valdivieso (1926–2012), of Bogotá, renowned authority on Colombian orchids.**Morphology:** *Plant* 5–7.5 cm tall, densely clumping. *Ramicaul* 2–3 cm long. *Leaf* 3–4.5 cm long by 0.5–0.6 cm wide, petiolate, narrowly elliptical, apex acute, lamina erect. *Inflorescence* a densely congested raceme, to 2.0–2.5 cm in length including peduncle, umbellate, erect. *Flower* minute, to 0.2 cm tall, to 15 in number, simultaneous, sepal and petal margins minutely ciliate, lip margins revolute, pedicels to 0.2 cm.**Range, elevation and habitat:** *Platystele ortiziana* is found in eastern Panama (province of Colón) and coastal Pacific Colombia (department of Chocó) at elevations of approximately 300 m. It grows in humid, tropical forest. No conservation status information could be found. No bloom-time records were found, but this species is likely to bloom at any time.**Culture recommendations:** See general notes for the genus. *Temperature* warm to warm-intermediate.**Comments:** One of the few umbellate-flowered members of the genus, *Platystele ortiziana* has short inflorescences of nicely clustered, minute, glistening flowers. This gem is warm-growing, a plus for people who wish to grow pleurothallids, but are frustrated by the cool conditions required by the vast majority of species. This species is quite similar to *P. dasyglossa*, and often confused with it in collections. The latter was described as a smaller plant, with the apex of the lip acute and upturned. *Platystele ortiziana* is a larger plant, up to 7.5 cm tall, and the sepals and petals have ciliate margins, a feature that is difficult to detect. Regardless, the differences seem to be slight, and we find that many plants in cultivation are difficult to assign to either species with certainty. The authors have not seen any plants labelled as *P. dasyglossa* with an upturned apex of the lip, nor plants of *P. ortiziana* taller than 3.5 cm. Therefore, it must be allowed that the species illustrated may have been incorrectly named. Both species can flower at any time in cultivation.

Figure 4.1130 (above) *Platystele ortiziana* is umbellate, producing clustered flower heads (Grower: Darwin Harrison).
 Figure 4.1131 (following page) Detail of a *Platystele ortiziana* umbel (Grower: Darwin Harrison).



PLATYSTELE***Platystele repens*** (Ames) Garay**Publication:** *Orquideologia* 9: 120 (1974)**Etymology:** From the Latin *repens* (creeping), in reference to the repent growth habit.**Homotypic synonyms:** *Pleurothallis repens* Ames, *Specklinia repens* (Ames) Pridgeon & M.W.Chase.**Morphology:** *Plant* 3.5–5 cm tall, shortly repent, mat-forming. *Ramicaul* to 0.7 cm long, sub-erect to ascending. *Leaf* 3–4.5 cm long by 0.3–0.5 cm wide, petiole to 1 cm in length, narrowly elliptic-obovate, apex sub-acute to obtuse, lamina erect. *Inflorescence* a somewhat dense raceme, 1.5–2 cm in length, erect. *Flower* to 0.5 cm in diameter, few in number, successive, 1–2 open simultaneously, segments translucent, lip varies in colour from bright orange to yellowish.**Range, elevation and habitat:** *Platystele repens* occurs in the state of Veracruz, Mexico, and in the department of Alta Verapaz, Guatemala, as well as in Belize. It occurs at elevations of 300–350 m in wet, tropical, lower montane forest. No bloom-time records could be found, but it is likely that flowering can occur at any time of year. Conservation status unknown.**Culture recommendations:** See general notes for the genus. *Temperature* warm to warm-intermediate.**Comments:** One of the warmer growing species in the genus, *Platystele repens* has much to recommend it. It easily grows into a specimen plant and a mature individual nearly always has flowers. Divisions can be taken without harming the appearance of the plant, making it easy to propagate. The flowers have a full, pleasing shape, and the translucent petals and sepals contrast beautifully with the bright yellow to orange lip. This is a highly recommended species, particularly for those who wish to try growing pleurothallids in the absence of the cool-growing conditions required for many species of this subtribe.**Figure 4.1132 (above)** Leaves and flowers of the *Platystele repens* clone 'Joan' (Grower: Howard Gunn).**Figure 4.1133 (above)** *Platystele repens* 'Joan' is virtually always in flower and very worthwhile (Grower: Howard Gunn).

PLATYSTELE

Platystele schmidtchenii Schltr.

Publication: *Repert. Spec. Nov. Regni Veg. Beih.* 27: 166 (1924)

Etymology: Named in honour of G. Schmidtchen of Dresden, Germany, who collected this species in Colombia in the 19th century.

Heterotypic synonym: *Platystele escobariana* Garay.

Morphology: *Plant* 3.5–7.5 cm tall, densely clumping. *Ramicaul* 1–1.5 cm long. *Leaf* 2.5–6 cm long by 0.5–0.9 cm wide, base cuneate into short petiole, elliptic-obovate, apex sub-acute, lamina erect. *Inflorescence* a raceme, to 20 cm in length including 3–5 cm peduncle, flowers secund, alternating, erect. *Flower* to 0.7–0.9 cm tall, many in number, mostly simultaneous.

Range, elevation and habitat: *Platystele schmidtchenii* has a relatively wide distribution and is found in both the western and central cordilleras of Colombia (departments of Antioquia, Caldas and Tolima), as well as the eastern slopes of the Andes in Ecuador (provinces of Imbabura, Morona-Santiago, Napo, Pastaza, Sucumbíos and Tungurahua), Bolivia (department of Cochabamba) and Peru (department of Puno). It is found at elevations of 1000–2400 m in wet montane forest and cloud forest, where it is fairly frequent. Bloom-time records show flowering in the months of April, May, August, September, October and November, but it is likely that *P. schmidtchenii* can flower in any month in nature.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool

Comments: A wonderful *Platystele* species, *P. schmidtchenii* has a multitude of star-like, yellowish flowers with an orange lip. They are perfectly spaced and well presented on a tallish, erect spike held above the leaves. In addition, the blooms essentially all face the same direction. This species tends to flower in early winter in cultivation, at least in collections in the United States.



Figure 4.1134 (above) *Platystele schmidtchenii* produces wonderful, well-spaced flowers (Grower: Marni Turkel).



Figure 4.1135 (above) A crowd of *Platystele schmidtchenii* blooms on adjacent inflorescences (Grower: Marni Turkel).

PLATYSTELE***Platystele stenostachya* (Rchb.f.) Garay****Publication:** *Caldasia* 8: 520 (1962)**Etymology:** From the Greek *steno* (narrow) and *stachys* (spike), in reference to the slender inflorescences.**Homotypic synonyms:** *Humboltia stenostachya* (Rchb.f.) Kuntze, *Pleurothallis stenostachya* Rchb.f.**Heterotypic synonyms:** *Humboltia dubia* (A.Rich. & Galeotti) Kuntze, *Pleurothallis dubia* A.Rich. & Galeotti, *Pleurothallis dubia* var. *myriantha* (F.Lehm. & Kraenzl.) Schltr., *Pleurothallis lankesteri* Rolfe, *Pleurothallis minutiflora* S.Watson, *Pleurothallis myriantha* F.Lehm. & Kraenzl., *Pleurothallis stenostachya* var. *lankesteri* (Rolfe) Ames.**Morphology:** Plant 1.5–11 cm tall, loosely clumping, rhizome ascending. *Ramicaul* 0.5–5.5 cm tall. *Leaf* 1–5.5 cm long (including 0.5–2 cm petiole) by 0.3–0.8 cm wide, narrowly elliptic-obovate, apex sub-acute, lamina erect. *Inflorescence* a congested raceme, to 3.5 cm in length, erect to descending, flowers distichous. *Flower* 0.2–0.4 cm tall, several to many in number, successive, 1–4 open simultaneously, lip thick, ovate. Flowers vary in size, but also in colour from yellowish to orange.**Range, elevation and habitat:** *Platystele stenostachya* is a common and very widespread species, with collection records in Mexico (states of Chiapas, Oaxaca, Tabasco and Veracruz), Belize (districts of Cayo, Stann Creek and Toledo), Guatemala (departments of Alta Verapaz, Izabel, Petén and Retalhuleu), Honduras (department of Atlántida, Comayagua, Cortés and Olancho) Nicaragua (department of Atlántico Norte, Estelí, Río San Juan, Rivas and Zelaya), Costa Rica (provinces of Alajuela, Guanacaste, Limón and San José), Panama (provinces of Chiriquí, Herrera and Los Santos), Colombia (departments of Chocó and Valle del Cauca), Ecuador (provinces of Esmeraldas, Napo, Pastaza, Sucumbíos and Tungurahua), Peru, Bolivia (departments of Cochabamba and La Paz), Venezuela (states of Sucre and Yaracuy) and Suriname, at elevations of 15–1700 m. This species grows as an epiphyte in dense, humid, lowland tropical forests to high elevation cloud forest, often high in trees. It also grows lithophytically on mossy rocks. *Platystele stenostachya* may flower at any time of year.**Culture recommendations:** See general notes for the genus. *Temperature* warm to cool, depending on plant provenance; if unknown, grow in intermediate conditions.**Comments:** One of the most widespread species of the genus, *Platystele stenostachya* is generally from the warm humid lowlands, but it also reaches montane areas. Plants are likely to be in near constant bloom, with multitudes of inflorescences and masses of brightly coloured, gem-like flowers of yellow or orange. Moreover, the spikes are successively**Figure 4.1136 (above)** Leaves and flowers of a mounted *Platystele stenostachya* (Grower: Mary Gerritsen).**Figure 4.1137 (above)** In this form of *Platystele stenostachya*, the flowers emerge close to the mount (Grower: Brad Cotten).

PLATYSTELE

flowering, and last for many months. *Platystele stenostachya* is easy to grow, adaptable, and widely available. It is another great selection for growers with warm to intermediate conditions.



Figure 4.1138 (above) A pair of bright, richly coloured *Platystele stenostachya* flowers (Grower: Marni Turkel).

PLATYSTELE

Platystele umbellata P.Ortiz

Publication: *Orquideologia* 12: 136 (1977, publ. 1978)

Etymology: From the Latin *umbellatus* (umbellate), in reference to the inflorescence of this species.

Morphology: *Plant* 3–6 cm tall, densely clumping. *Ramicaul* 1–1.5 cm long. *Leaf* 2–4.5 cm long (including up to 1 cm petiole) by 0.7–1.5 cm wide, elliptic-spathulate, apex rounded, lamina erect. *Inflorescence* a very congested raceme, sub-umbellate, 1–1.5 cm in length, erect to spreading. *Flower* 0.2 cm in diameter, to 10 in number, simultaneous.

Range, elevation and habitat: *Platystele umbellata* occurs in the departments of Antioquia and Chocó, Colombia, at fairly low elevations up to 600 m. In Chocó it is fairly common, growing as a canopy twig epiphyte in warm, wet, tropical forest. *Platystele umbellata* can flower in any month in nature. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate.

Comments: *Platystele umbellata* is one of the most satisfying species of the genus to grow. Although the reddish, fuzzy flowers are tiny, they cluster in a tight umbel of up to 10 individual blossoms, reminding most who see it of a tiny raspberry. In addition to their fantastic flowers, the plants can bloom in any month of the year. It is one of approximately four *Platystele* with umbellate racemes, but it cannot be mistaken for any of its relatives. This species can grow in either warm or intermediate localities and is ideal for collectors with those conditions, in contrast to the many pleurothallids that require cooler temperatures. The authors have observed many plants of this species in collections, and they have almost invariably been grown in small pots. They will also grow well mounted, provided humidity is high.



Figure 4.1139 (above) The clustered flowers of *Platystele umbellata* are very pretty (Grower: J & L Orchids).



Figure 4.1140 (above) The pendent, raspberry-like *Platystele umbellata* umbel is a fascinating subject (Grower: Marni Turkel).

Plectrophora H.Focke

Publication: Focke, H. C., 1848, *Tijdschr. Natuurk. Wetensch. Kunsten* 1: 212

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Plectrophora iridifolia* (Lodd. ex Lindl.) H.Focke, 1848, *Tijdschr. Natuurk. Wetensch. Kunsten* 1: 212.

Etymology: From the Greek *plektron* (spur) and *phoros* (bearing), in reference to the prominent spur of the flowers in this genus.

Heterotypic synonym: *Jansenia* Barb.Rodr.

Profile: A genus of approximately 10 species of twig epiphytes that occur in Mexico, Guatemala, Costa Rica and Panama, through South America to Bolivia and southeastern Brazil. Plants usually grow in wet, shady forest at elevations of 200–1000 m.

General morphology: *Plant* sympodial, epiphytic, small to miniature, clumping, usually pendent, fan-shaped. *Pseudobulb* small, laterally compressed, subtended and partially to completely obscured by few to several leafy bracts, unifoliate, apical. *Leaf* and leafy bracts often longitudinally folded, bifacial, leathery, fleshy, with imbricating leaf bases. *Inflorescence* a raceme, short, slender, lateral, axillary. *Flower* more or less tubular, singly successive, resupinate, sepals and petals free, subsimilar or broader than the lateral sepals, lip unlobed, infundibuliform, apex flaring, with prominent sepaline spur, column thick, ovary pedicellate, pollinia 2.

General culture notes: *Substrate* mount pendently (so that water cannot lodge in leaf axils) on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using little or no New Zealand *Sphagnum* moss around the roots, depending on humidity. These species are not suited to potted culture due to their often pendent habit. *Temperature* dependent upon species. *Light* medium shade. *Watering* dependent upon species. *Humidity* high. *Air movement* good. *Propagation* occasionally by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly. It is best to reduce the application of fertiliser during winter.

Comments: Although this is a small genus, there is considerable taxonomic confusion in the literature, in herbarium collections and amongst cultivated plants, which can make identification a challenge.



Figure 4.1141 (above) The flower of *Plectrophora alata* has fine colouration, a flaring apex and an elegant spur (Grower: Marni Turkel).

PLECTROPHORA***Plectrophora alata*** (Rolfe) Garay**Publication:** *Bot. Mus. Leaf.* 21: 261 (1967)**Etymology:** From the Latin *alatus* (winged), referring to the winged petiole.**Homotypic synonym:** *Trichocentrum alatum* Rolfe.**Morphology:** *Plant* 7–13.5 cm long, single to loosely clustered. *Pseudobulb* to 0.8 cm tall by 0.7 cm wide, sub-orbicular to oblong in profile, enclosed by several distichous, overlapping leafy bracts. *Leaf* to 8.3 cm long by 0.7 cm wide, occasionally larger, shortly petiolate, linear-oblong, apex acute, lamina fairly rigid, channelled along midvein dorsally, shallowly keeled ventrally. *Inflorescence* a raceme, to 1.4 cm in length, spreading to descending. *Flower* to 2.5 cm wide or occasionally larger, one to few in number, singly successive, campanulate, spreading, spur 4–5 cm in length.**Range, elevation and habitat:** *Plectrophora alata* occurs in southern Mexico (state of Chiapas), Guatemala, Costa Rica (province of San José), Panama (province of Chiriquí) and Colombia, where it grows as an epiphyte in montane rainforest at elevations of 670–1800 m. Flowering occurs between February and August in nature. No conservation status information was found for this taxon.**Culture recommendations:** *Temperature* warm to intermediate. *Watering* water frequently, but allow roots to dry briefly between waterings. These plants require excellent drainage.**Comments:** *Plectrophora alata* is not frequently seen in cultivation, but it is well worth growing. The striking plant, with its flattened, leathery leaves arranged in a fan, is handsome in its own right, but add the long-spurred, white, tubular flowers with bright orange lines in a yellow throat, and one has a wonderful collector's item. This species is one of the few in the genus that is available with any regularity. Flowering in cultivation usually occurs between late winter and mid-spring, but blooms have been seen at other times.**Figure 4.1142 (above)** Handsome striping is apparent within the flower of *Plectrophora alata* (Grower: Marni Turkel).**Figure 4.1143 (above)** A *Plectrophora alata* bloom seen in semi-profile (Grower: Marni Turkel).

PLECTROPHORA

Plectrophora cultrifolia (Barb.Rodr.) Cogn.

Publication: in C. F. P. von Martius & auct. suc. (eds.), *Fl. Bras.* 3(6): 185 (1904)

Etymology: From the Latin *cultri* (knife) and *folia* (leaf), referring to the flattened, falcate leaves.

Homotypic synonym: *Jansenia cultrifolia* Barb.Rodr.

Morphology: *Plant* 4–7 cm long, single to few clustered. *Pseudobulb* to 1 cm long by 0.4 cm wide, ellipsoid, flattened laterally, enclosed in leafy bracts. *Leaf* to 8 cm long by 1 cm wide, lanceolate, falcate, apex acute, petiole indistinct, lamina basically erect, often somewhat curved to side, leathery, fleshy. *Inflorescence* a raceme, 0.6–2.5 cm in length, erect in relation to plant. *Flower* to 2.2 cm wide, to 4 cm long including spur, single, campanulate, spreading, spur 1.5–2 cm in length. Background colour varies from greenish to creamy white.

Range, elevation and habitat: *Plectrophora cultrifolia* is found at elevations of 200–650 m in Colombia, Ecuador (provinces of Napo and Sucumbíos), Peru (departments of Madre de Dios and San Martín), Bolivia (department of Cochabamba), Venezuela (departments of Amazonas and Bolívar), French Guiana and Brazil (states of Roraima, Pará and Amazonas). This species grows as a relatively common epiphyte in treetops and shrubs along river banks in tropical, humid, lowland rainforest. Flowering records for Peru show that this species blooms there in January and February.

Culture recommendations: *Temperature* warm to intermediate, with a winter minimum of 13 °C (55 °F). *Watering* water frequently, ensure excellent drainage, but keep somewhat drier during winter.

Comments: Somewhat similar to the preceding species, the flowers of *Plectrophora cultrifolia* are white with orange in the throat, but the sepals and petals are thinner in texture and the segments are generally more forward-pointing. The orange colouration in the throat of the lip is lighter, and instead of lines there are rows of spots and dashes. Noticeably more delicate, the diaphanous blooms have a lip that is crystalline in texture, giving them an ethereal quality. Flowering in cultivation generally occurs between early autumn and early spring.



Figure 4.1144 (above) *Plectrophora cultrifolia* has thinner, more delicate looking blooms with more subtle colouration (Grower: Marni Turkel).

Pleurothallis R.Br.

Publication: Brown, R., 1813, in W.T. Aiton, *Hortus Kew*, 5: 211

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Pleurothallis ruscifolia* (Jacq.) R.Br., 1813, in W.T. Aiton, *Hortus Kew*, ed. 2. 5: 211 [Nov].

Etymology: From the Greek *pleuro* (rib) and *thallos* (shoot, branch), referring to the thin stems (ramicauls).

Profile: A large genus of more than 500 epiphytic, lithophytic and terrestrial species with clumping to repent growth habits. They occur in southern Florida, the Caribbean, Mexico, Central America and much of tropical South America in a wide variety of habitats, ranging from coastal scrub to high elevation cloud forest and subpáramo at 3000 m and above.

General morphology: *Plant* sympodial, very diverse, rhizomes generally much branching, clumping or repent. *Ramicaul* usually slender, terete or compressed, variably enclosed in tubular sheaths, leaf apical, unifoliate. *Leaf* extremely variable in shape, often leathery, fleshy. *Inflorescence* one to several simultaneous, or successive racemes from a fascicle, terminal at apex of ramicaul. *Flower* single to many in number, successive or simultaneous, resupinate or non-resupinate, sepals free or lateral sepals variously connate to form synsepal, petals free, usually smaller than sepals, lip unlobed or trilobed, pollinia 2.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These plants can also be grown in pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* generally medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Pleurothallis*, are prone to infection by bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of such pests.



Figure 4.1145 (above) Though not a miniature species, *Pleurothallis alvaroi* illustrates well the unusual and compelling beauty of this genus (Grower: Russ Varnado).

PLEUROTHALLIS

Pleurothallis allenii L.O.Williams

Publication: *Ann. Missouri Bot. Gard.* 27: 275 (1940)

Etymology: Named in honour of Paul Hamilton Allen (1911–1963), botanist and plantsman specialising in the ecology of Central America, noted for his work in orchid systematics and economically important plants.

Homotypic synonyms: *Acronia allenii* (L.O.Williams) Luer, *Zosterophyllanthos allenii* (L.O.Williams) Szlach. & Marg.

Morphology: *Plant* 7–15 cm tall, densely clumping, erect. *Ramicaul* 3.5–6.5 cm long, erect, very slender. *Leaf* 3.5–8.5 cm long by 0.5–0.8 cm wide, sessile, narrowly elliptical, narrowly lanceolate, acuminate, apex obtuse to acute, juvenile foliage brownish. *Inflorescence* a fascicle bearing successive, single-flowered racemes, one to two simultaneous, 1.2–1.5 cm in length, erect, filiform, emerging from spathe. *Flower* 2.5–3 cm tall, single, widely spreading. Flowers vary slightly in shape, and in colour of dorsal sepal and petal margins from yellowish to yellowish-green.

Range, elevation and habitat: *Pleurothallis allenii* is endemic to the province of Coclé, Panama, at elevations of 550–1000 m, where it grows epiphytically in moist, montane forest. There is one bloom-time record for December. No conservation status information could be found, but it is likely threatened due to human activities.

Culture recommendations: See general notes for the genus. *Temperature* intermediate. The authors have seen plants of *P. allenii* growing well under cool conditions, but when temperatures are too cold, plants tend to develop black spots on their leaves.

Comments: *Pleurothallis allenii* is truly a rewarding species to grow. The good-sized, nearly flat, elegantly shaped flowers are a rich, dark red with sepals that have contrasting yellow margins. The densely clumping plants are also quite attractive, with rigid, pointed, lance-like leaves borne on very slender, but sturdy ramicauls. Each ramicaul can produce lovely flowers for several seasons. Although the plants will grow under cool conditions, they prefer intermediate temperatures. Flowering occurs between late summer and mid-winter in cultivation.

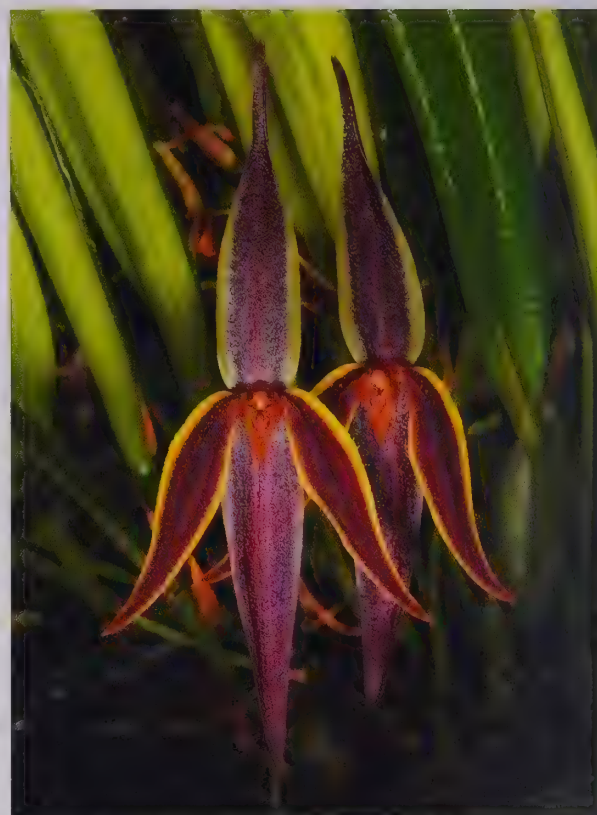


Figure 4.1146 (above) A pair of richly coloured *Pleurothallis allenii* blooms (Grower: Marni Turkel).

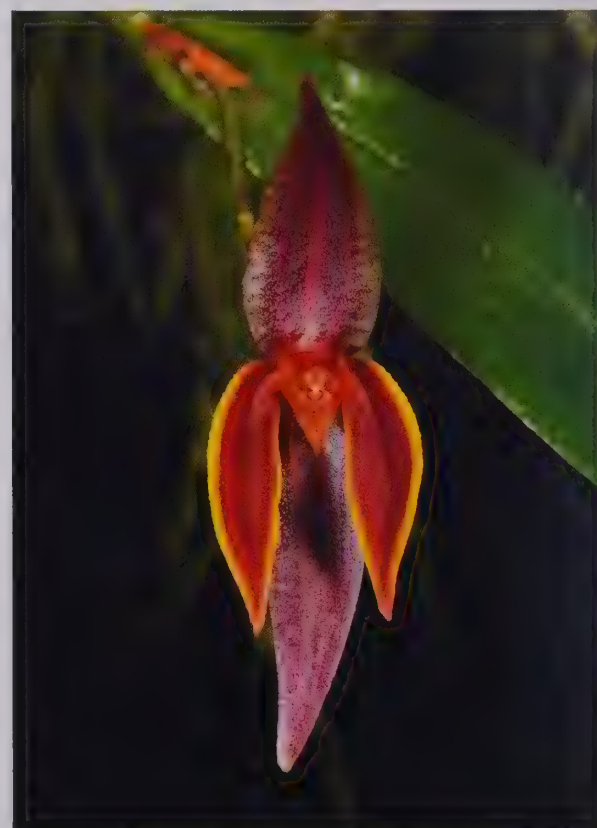


Figure 4.1147 (above) *Pleurothallis allenii* is elegant and rewarding to grow (Grower: Marni Turkel).

PLEUROTHALLIS

Pleurothallis avenacea Ames

Publication: *Orchidaceae* 2: 266 (1908)

Etymology: From the Latin *avenacea* (oat-like), in reference to the appearance of the flowers and their inflorescence.

Homotypic synonyms: *Pabstiella avenacea* (Ames) Luer, *Specklinia avenacea* (Ames) Luer.

Morphology: *Plant* 5–7 cm tall, clumping, erect, roots profuse, thin. *Ramicaul* to 3.5 cm in length, slender, black, erect. *Leaf* 2.5–3.5 cm long by 0.9–1.3 cm wide, subpetiolate, oblanceolate, apex rounded, lamina erect, slightly succulent, rigid. *Inflorescence* a raceme, to 7 cm long, erect to sub-erect, filiform. *Flower* to 0.8 cm long, to 6 in number, occasionally more, simultaneous, nodding, non-resupinate, long-lasting.

Range, elevation and habitat: *Pleurothallis avenacea* occurs in the Organ Mountains of southern Brazil at elevations of 900–1600 m. It grows epiphytically on moss-covered tree trunks, mid- to high branches and lianas in airy and humid, moist, primary montane and cloud forest. This species is quite common and often grows in large colonies. In nature, *P. avenacea* flowers between September and December, often with a second blooming in April.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: Many growers know this species as *Pleurothallis mathildae*, a name likely to be found on labels in many collections. Although this species is currently classified within *Pleurothallis*, it may not remain in the genus. It is a wonderful species, with attractive foliage and striking, non-resupinate, whitish flowers with darker pencilled lines. The blooms nod from thread-like inflorescences. *Pleurothallis avenacea* is a perfect selection to grow to specimen size, and a large plant with a multitude of flowers is a glorious sight. Some say the flowers have an unpleasant smell, but the authors and other growers have not noticed any particular fragrance. Flowering in cultivation has been noted between late autumn and early summer.



Figure 4.1148 (above) A *Pleurothallis avenacea* in copious bloom is a wonderful sight (Grower: Steve Beckendorf).



Figure 4.1149 (above) *Pleurothallis avenacea* has fine flowers borne on very narrow stems (Grower: Hanging Gardens).

PLEUROTHALLIS***Pleurothallis nipterophylla* Luer****Publication:** *Selbyana* 3: 148 (1976)**Etymology:** From the Greek *nipterus* (basin-shaped) and *phyllon* (leaf), in reference to the concave leaf of this species.**Homotypic synonyms:** *Acronia nipterophylla* (Luer) Luer, *Zosterophyllanthos nipterophyllus* (Luer) Szlach. & Kulak.**Morphology:** Plant 9–14 cm tall, clumping, erect. *Ramicaul* 7–12.5 cm long, slender, sub-erect to erect. *Leaf* 5–5.5 cm long by 3.2–3.8 cm wide, sessile, cordate-ovate, deeply concave, basal lobes incurved and overlapping, apex acute, lamina descending to pendent, rigid, leathery. *Inflorescence* a dense raceme, extremely abbreviated, arising from spathe at apex of ramicaul. *Flower* 0.4 cm in diameter, few to 15 in number, simultaneous, resupinate, pedicels to 0.8 cm long.**Range, elevation and habitat:** *Pleurothallis nipterophylla* is found in the provinces of Loja, Morona-Santiago and Zamora-Chinchi, Ecuador, at elevations of 1400–3100 m. It grows as an epiphyte in wet montane forest and high elevation cloud forest, with plants generally flowering at any time of the year. It is listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cold, depending on plant provenance. If unknown, cultivate under cool conditions.**Comments:** *Pleurothallis nipterophylla* has the most incredible plant form, and it looks particularly fantastic when grown on a mount. Although it may be possible to grow this species in a pot, it displays much more attractively when mounted; the ramicauls jut outwards, bearing handsome, pendent, cup-like leaves with clusters of maroon flowers nestled at their base. In cultivation, unlike in nature, *P. nipterophylla* tends to flower between mid-summer and early winter, possibly in response to the distinct seasons.**Figure 4.1150 (above)** *Pleurothallis nipterophylla* plants are truly remarkable in form, and display well (Grower: Cindy Hill).**Figure 4.1151 (above)** The clustered little flowers of *Pleurothallis nipterophylla* in detail (Grower: Cindy Hill).

PLEUROTHALLIS

Pleurothallis niveoglobula Luer

Publication: *Selbyana* 1: 258 (1975)

Etymology: From the Latin *niveo* (snow-white) and *globulus* (ball, globe), in reference to the globose, barely open flowers.

Homotypic synonym: *Ancipitia niveoglobula* (Luer) Luer.

Morphology: *Plant* 5–14 cm tall, clumping, erect. *Ramicaul* 3–11 cm tall, erect to sub-erect, slender, laterally compressed above the middle. *Leaf* 1.5–4 cm long by 1–2 cm wide, sessile, more or less spreading, ovate to sub-cordate, apex acute, lamina leathery. *Inflorescence* a succession of single-flowered racemes, one to two simultaneous inflorescences, peduncle to 0.6 cm in length, erect to sub-erect, filiform, from spathe at apex of ramicaul. *Flower* to 0.3 cm in diameter, globose, barely opening, pedicel to 1 cm in length.

Range, elevation and habitat: A locally common species, *Pleurothallis niveoglobula* occurs on the eastern slopes of the Andes mountains in central and southern Ecuador (provinces of Morona-Santiago, Napo, Pastaza and Zamora-Chinchipe), as well as Peru (department of Amazonas), at elevations of 500–1650 m. It grows epiphytically in wet montane and cloud forest, where it is locally abundant and generally flowers year round.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: A treasure to own, *Pleurothallis niveoglobula* is in near constant bloom, each leaf bearing one flower after another for many seasons. It has tiny, spherical, white flowers that are held on thread-like, erect inflorescences, often with two simultaneous blooms per leaf. The tiny flowers are so minute that it is difficult to tell when they are open, given that they barely separate at the tips. This easy-to-grow species is readily available to collectors.



Figure 4.1152 (above) *Pleurothallis niveoglobula* produces tiny blooms, often in pairs (Grower: J & L Orchids).



Figure 4.1153 (above) The flowers of *Pleurothallis niveoglobula* in detail (Grower: J & L Orchids).

PLEUROTHALLIS

Pleurothallis pterophora Cogn.

Publication: in C. F. P. von Martius & auct. suc. (eds.), *Fl. Bras.* 3(4): 583 (1896)

Etymology: From the Latin *ptero* (wing) and *phora* (bearing), possibly in reference to the flowers.

Homotypic synonym: *Trichosalpinx pterophora* (Cogn.) Luer.

Heterotypic synonym: *Pleurothallis pterophora* var. *minor* Cogn.

Morphology: *Plant* to 15 cm tall, clumping, erect. *Ramicaul* to 8 cm long, sheaths two, lepanthiform, reddish-brown, with hispid hairs. *Leaf* to 8 cm long by 2.3 cm wide, subpetiolate, elliptic-oblong, apex obtuse to occasionally apiculate, lamina erect, rigid, thick, leathery, purple spotted when juvenile. *Inflorescence* a raceme, one to two simultaneous, to 12 cm in length, terete, filiform, fractiflex, erect to spreading, from long lived fascicle at apex of ramicaul. *Flower* 0.8–1.1 cm long, several to many in number, simultaneous, resupinate, barely spreading, lateral sepals connate for most of length to form synsepal, fragrant.

Range, elevation and habitat: An uncommon Brazilian endemic, *Pleurothallis pterophora* is found in the Mata Atlântica, in the states of Minas Gerais, São Paulo, Rio de Janeiro and Santa Catarina at elevations of 1100–1300 m. It occurs in humid, primary montane forest, growing epiphytically on mid-tree branches, as well as in swampy forest on lower branches. Flowering occurs between December and April in nature. No conservation status information could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: One of the most popular pleurothallids in collections, *Pleurothallis pterophora* is another species that will undoubtedly be placed in a different genus at some future date. The ramicauls (leaf stems) are enclosed in two lepanthiform sheaths, a characteristic typical of only the distantly related genera *Lepanthes*, *Lepanthopsis* and *Trichosalpinx*. Regardless of its taxonomic classification, this species is a jewel and well worth growing. The juvenile foliage is particularly attractive, with purple, leopard-like spots that disappear as the leaf matures. However, it is the flowers that are the real attraction; snow white, numerous and fragrant! In addition, each leaf can produce blooms for four to five years, a trait any orchid fancier would enjoy. Flowering has been noted in early to mid-summer, as well as mid-autumn in cultivation, and it is likely to bloom at other times also.



Figure 4.1154 (above) *Pleurothallis pterophora* in mass bloom (Grower: Anna Chai).

Figure 4.1155 (facing page) Detail of the clustered flowers of *Pleurothallis pterophora*, a species that can bloom repeatedly from each leaf (Grower: Anna Chai).



Pleurothallops Porto & Brade

Publication: Porto, P. C., & Brade, A. C., 1937, *Arq. Inst. Biol. Veg.* 3: 133

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Pleurothallops nemorosa* (Barb.Rodr.) Porto & Brade, 1937, *Arq. Inst. Biol. Veg.* 3: 133 (originally described as *Lepanthes nemorosa* Barb.Rodr.).

Etymology: From the related genus, *Pleurothallis*, and the Greek *opsis* (like), referring to the resemblance of plants within this genus to many *Pleurothallis* species.

Heterotypic synonym: *Restrepiopsis* Luer.

Profile: A genus of approximately 16 epiphytic, lithophytic or terrestrial species that are found in Guatemala and south to Bolivia and southern Brazil in wet, cloud or subpáramo forest. They occur from below 100 m to over 3600 m in elevation.

General morphology: *Plant* clumping to shortly repent. *Ramicaul* enclosed in sheaths, slender, erect to sub-erect, leaf apical, unifoliate. *Leaf* lanceolate to orbicular, leathery. *Inflorescence* a succession of 1–3 simultaneous, single-flowered racemes from congested fascicle, borne near apex of ramicaul. *Flowers* single to many in number, successive, resupinate, dorsal sepal free, lateral sepals free to sometimes partially connate, lip trilobed, hinged to column-foot, pollinia 4 or 8.



Figure 4.1156 (above) The handsome and brightly coloured flowers of *Pleurothallops monetalis* in detail (Grower: Ron Parsons).

PLEUROTHALLOPSIS

Pleurothallopsis monetalis (Luer) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 255 (2001)

Etymology: From the Latin *monetalis* (like a coin), referring to the round shape of the leaves.

Homotypic synonyms: *Octomeria monetalis* Luer, *Restrepiopsis monetalis* (Luer) Luer.

Heterotypic synonym: *Restrepiopsis pulchella* Luer.

Morphology: Plant 9.5–14 cm tall, clumping, branching, erect. *Ramicaul* 4.5–12.5 cm long, erect to sub-erect, enclosed in blackish, imbricating sheaths. *Leaf* 2–3.5 cm long by up to 1.2–3 cm wide, minutely petiolate, ovate to sub-orbicular, apex obtuse to rounded, lamina erect to spreading, thick, leathery, rigid, dorsally greenish-grey spotted with purple, ventrally purplish, long-lived. *Inflorescence* a single-flowered raceme borne from congested fascicle, successive, one to two (rarely three) simultaneous inflorescences, peduncle 0.3–0.7 cm in length. *Flower* 2–2.5 cm tall, many in number, widely spreading, petals proportionately large, pedicels minute. Flowers vary in colour from light orange to brownish orange, and in the number and length of lines on the lip.

Range, elevation and habitat: *Pleurothallopsis monetalis* is found in southeastern Ecuador (provinces of Morona-Santiago and Zamora-Chinipe), as well as the department of Cajamarca, Peru, at elevations of 1800–2000 m. It grows epiphytically in primary cloud and wet montane forest, as well as in secondary forest. No conservation status could be found, but it is certainly not a common species. Flowering can occur at any time of year in nature.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or dense tree fern, using little or no New Zealand *Sphagnum* moss around the roots depending on humidity levels of growing area. This species may possibly be grown in small pots using moss or a fine bark mix, though the authors have not seen it grown in this manner. *Temperature* intermediate-cool to cool. *Light* light shade to medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Pleurothallopsis*, are prone to infection by bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.

Comments: A rare and highly desirable species, this beauty is a favourite of the authors. The handsome plant has blackish stems that carry leathery, nearly round, bluish-green leaves speckled with purple above. Producing one striking flower after another, the plants are in near-continuous bloom. Moreover, each individual leaf may bear up to three simultaneous flowers.



Figure 4.1157 (above) *Pleurothallopsis monetalis* produces striking flowers (Grower: Marni Turkel).



Figure 4.1158 (above) *Pleurothallopsis monetalis* exhibits a range of colour forms, in this case yellow (Grower: Ron Parsons).

PLEUROTHALLOPSIS

Adding to its appeal, the wonderful orange to brownish-orange blossoms have an eye-pleasing shape, a contrasting whitish, striped lip, and are held close to the leaves. Slow-growing, this species does not freely branch, each plant producing only one to two new leaves per year.



Figure 4.1159 (above) *Pleurothallopsis monetalis* leaves may bear up to three simultaneous flowers (Grower: Hanging Gardens).



Figure 4.1160 (above) The bloom of an unidentified species of *Pleurothallopsis* from Colombia (Grower: Mary Gerritsen).

PLEUROTHALLOPSIS

Pleurothallopsis pandurata (Luer) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 255 (2001)

Etymology: From the Latin *panduratus* (pandurate, fiddle-shaped), referring to the shape of the lip.

Homotypic synonym: *Restrepiopsis pandurata* Luer.

Morphology: Plant 5–12 cm tall, clumping, branching, erect. *Ramicaul* 1.5–7 cm long, erect. *Leaf* 2–4 cm long by 0.7–1 cm wide, subpetiolate, elliptical, apex sub-acute, lamina erect, leathery. *Inflorescence* a congested raceme, one to three simultaneous inflorescences, peduncle 0.3–0.4 cm in length, originating from a fascicle, from near apex of ramicaul. *Flower* 1–1.2 cm tall, one to several in number, successive, resupinate, spreading.

Range, elevation and habitat: *Pleurothallopsis pandurata* occurs in southern Ecuador in the provinces of Loja and Zamora-Chinchiipe at elevations of 1000–2000 m. It grows epiphytically in wet montane forest. No bloom-time records could be found, but it is likely to bloom at any time of year in nature. No conservation status information could be found.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or dense tree fern, using New Zealand *Sphagnum* moss around the roots. This species can also be cultivated in small pots using moss or a fine bark mix. *Temperature* intermediate to intermediate-cool. *Light* light shade to medium shade *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Pleurothallopsis*, are prone to infection with bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.

Comments: Although not as rare as *Pleurothallis monetalis* in cultivation, *P. pandurata* is by no means considered common. The whitish flowers with their purplish stripes are quite charming, and are produced on the leaves for several years, though plants are not in constant bloom. Plants in some collections may be incorrectly labelled as *P. inequalis*. This species may flower at any time of year, and can have up to three simultaneous inflorescences per leaf.

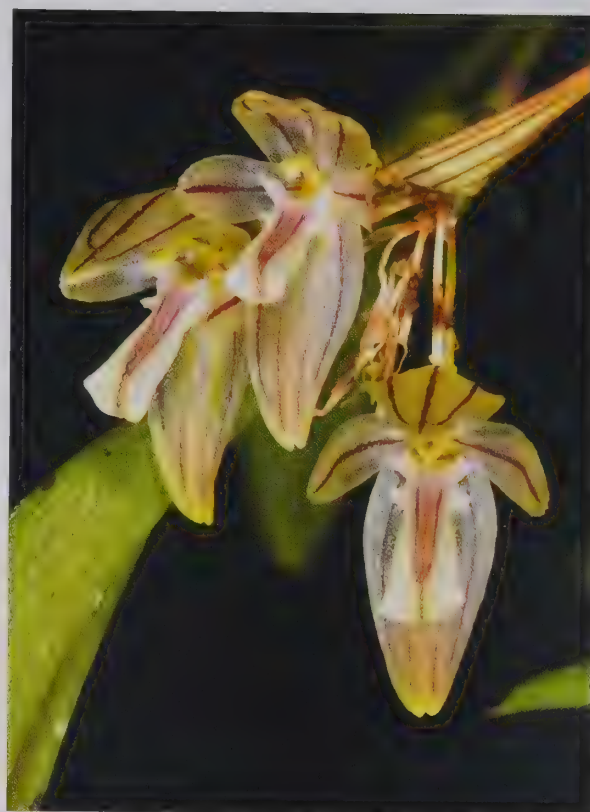


Figure 4.1161 (above) *Pleurothallopsis pandurata* has slightly translucent flowers (Grower: Marni Turkel).



Figure 4.1162 (above) *Pleurothallopsis pandurata* blooms are whitish and striped with purple (Grower: Marni Turkel).

Polystachya Hook.

Publication: Hooker, W. J., 1824, *Exot. Fl.* 2: t. 103, nom. cons.

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Polystachyinae

Type species: *Polystachya concreta* (Jacq.) Garay & H.R.Sweet, 1974, *Orquideologia* 9: 206 (as *Polystachya luteola* Hook nom. illeg.).

Etymology: From the Greek *poly* (many) and *stachya* (spike, narrow panicle), referring to the re-blooming habit of the type species.

Heterotypic synonyms: *Dendrobianthe* (Schltr.) Mytnik, *Dendrorkis* Thouars, *Dendrorchis* Thouars ex Kuntze, *Disperanthoceros* Mytnik & Szlach., *Epiphora* Lindl., *Epiphorella* Mytnik & Szlach., *Geerinckia* Mytnik & Szlach., *Nienokuea* A.Chev., *Szlachetkoella* Mytnik, *Unquiculabia* Mytnik & Szlach.

Profile: A large, varied and extremely widespread genus of over 250 species. *Polystachya* are usually epiphytic, but sometimes lithophytic and rarely terrestrial. The majority of species are found in Africa, but also occur in southern Florida, Mexico through Central America, tropical South America, the West Indies and tropical Asia.

General morphology: *Plant* sympodial, small to medium sized, usually erect, generally clumping, rhizome branching. *Pseudobulb* usually well defined, variable in shape, occasionally with reed-like stems, leaves apical, one to several in number, subtended by bracts (leafy in some species), sometimes deciduous. *Leaf* small to large, variously shaped, leathery, sometimes fleshy. *Inflorescence* a raceme or panicle, terminal. *Flower* small to medium sized, one to many in number, non-resupinate, often campanulate, occasionally pubescent, lateral sepals oblique, joined to column foot forming mentum, dorsal sepal smaller than lateral sepals, petals small, lip trilobed or entire, fleshy, column short, stout, pollinia 2.



Figure 4.1163 (above) Most individuals of *Polystachya ottoniana* are of a miniature stature (Grower: Linda Locatelli).

POLYSTACHYA

Polystachya aconitiflora Summerh.

Publication: *Bot. Mus. Leaf.* 10: 295 (1942)

Etymology: From the Latin *aconitiflorus* (with flowers shaped like a monkshood, genus *Aconitum*, in the Ranunculaceae).

Homotypic synonym: *Polystachya vulcanica* var. *aconitiflora* (Summerh.) P.J. Cribb & Podz.

Morphology: *Plant* to 12 cm tall, erect, clumping, grass-like. *Pseudobulb* to 3 cm tall by 0.1 cm wide, narrowly cylindrical, enclosed in sheaths, unifoliate. *Leaf* to 9 cm long by 0.12 cm wide, narrowly ligulate, apex obtuse, apiculate, lamina sub-terete, sulcate, basically erect, leathery, fleshy, underside minutely punctate. *Inflorescence* a congested raceme, to 5 cm long, flowers with subtending bracts, erect. *Flower* to 0.6 cm wide, 2–3 in number, successive, widely spreading.

Range, elevation and habitat: *Polystachya aconitiflora* occurs in Uganda, Rwanda, Zaire and the Congo. It grows epiphytically, and occasionally lithophytically, in mossy, wet montane forest at elevations of 1650–3000 m. In Rwanda it is found on the forested slopes of volcanoes. This species can bloom at any time in nature. No conservation status information could be found.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. It may also be grown potted in moss or a fine bark mix. *Temperature* intermediate to cool. *Light* light shade to medium shade. *Watering* keep moist, but well-drained, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing during winter.

Comments: A very charming species, *Polystachya aconitiflora* is distinctly smaller in both plant form and flower than its close relative, *P. vulcanica*. Both have unusual, grass-like leaves and ivory flowers with pinkish to wine-red on part or all of the lip, but *P. aconitiflora* is usually half the size of *P. vulcanica*. Both species are certainly worth growing and should be sought out. Flowering can occur in any month, and the plants do not require a rest period.



Figure 4.1164 (above) Flowers of *Polystachya aconitiflora*, a native of central Africa (Grower: Howard Gunn).

Figure 4.1165 (overleaf) A pristine bloom of the related *Polystachya vulcanica* (Grower: Anna Chai).



POLYSTACHYA

Polystachya campyloglossa Rolfe

Publication: *Bull. Misc. Inform. Kew* 1909: 366 (1909)

Etymology: From the Greek *campylo* (bent) and *glossus* (tongue), referring to the lip of this species.

Morphology: *Plant* to 12 cm tall, erect, clumping, pseudobulbs clustered, roots numerous, large, fleshy. *Pseudobulb* 1–2.5 cm long by 0.5–1 cm wide, globose to ovoid to conical-ovoid, leafy bracts, leaf apical, 2–3 in number, older pseudobulbs deciduous. *Leaf* to 10 cm long by 2 cm wide, shortly petiolate, narrowly oblong to oblanceolate, conduplicate near base, apex acute to obtuse, lamina sub-erect, softly leathery, margins occasionally coloured purple. *Inflorescence* a raceme, 7.5–12.5 cm in length, erect, subtending bracts finely pubescent. *Flower* 2.2–2.5 cm wide, to 7 in number, simultaneous, exterior of segments, side-lobes of lip and ovary finely pubescent, fragrant. Flowers are variable in colour from yellowish to green.

Range, elevation and habitat: *Polystachya campyloglossa* occurs in Malawi, Uganda, Kenya, Tanzania and Zimbabwe. It is usually epiphytic in a variety of habitats including remnant forest, riverine forest, evergreen forest and occasionally in high rainfall woodland and montane cloud forest at elevations of 1100–1900 m, rarely to 2700 m. This species generally blooms during the summer months. *Polystachya campyloglossa* is rare in Malawi, but it is not uncommon in the northern part of its range.

Culture recommendations: *Substrate* probably best grown in pots using a medium bark mix or possibly New Zealand *Sphagnum* moss. It is rarely seen grown on mounts due to its large, thick roots, but it could be cultivated on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using a piece of sufficient size to accommodate the roots. *Temperature* intermediate during growth period, but cooler during the winter months. *Light* bright diffused to light shade. *Watering* water frequently while actively growing, but allow roots to approach dryness before watering again. Reduce frequency of watering during the winter months, perhaps only misting the roots occasionally. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or omit fertiliser during the winter months.

Comments: The attractive flowers of *Polystachya campyloglossa* are pleasantly fragrant, sometimes strongly so, and they are somewhat variable in colour, generally yellowish to green, but with a light-coloured, spotted lip. In nature, the plants are distinctly smaller than in cultivation; with abundant water and regular fertiliser, plants often grow to 17 cm or more in collections. Flowering generally occurs between late winter and early summer in cultivation.



Figure 4.1166 (above) *Polystachya campyloglossa* produces variably coloured, attractive flowers with a pleasant fragrance (Grower: Marni Turkel).

POLYSTACHYA***Polystachya johnstonii* Rolfe**

Publication: in D. Oliver & auct. suc. (eds.), *Fl. Trop. Afr.* 7: 124 (1897)

Etymology: Named for Harry Hamilton Johnston (1858–1927), British explorer, zoologist and botanist, who served as the first British consul and commissioner of Nyasaland (Malawi) from 1891–1895. “Comm. by H.H. Johnston” is written on the voucher for the type specimen.

Morphology: *Plant* 4–8.5 cm tall, erect, clumping, roots long. *Pseudobulb* 1–1.5 cm long by 1 cm wide, ovoid, oblong to almost globose, slightly laterally compressed, subtended by leafy bracts, leaves apical, 2–3 in number, deciduous in dry season. *Leaf* 3–7 cm long by 1–1.5 cm wide, conduplicate at base, lanceolate to ligulate, apex acute, lamina minutely bilobed, somewhat spreading, leathery, flexible, sometimes suffused with purple. *Inflorescence* a densely flowered raceme, 3–5 cm long, erect, peduncle pubescent, subtending bracts pubescent, borne from centre of new growth before bulb matures. *Flower* to 2 cm wide, 2–12 in number, simultaneous, spreading widely, petals forward-jutting, exterior of segments and side-lobe of lip pubescent, fragrant. Plants vary in size, and flowers in colour and pattern.

Range, elevation and habitat: *Polystachya johnstonii* is an epiphytic species endemic to the highlands of southern Malawi, where it grows at elevations from 1350–2270 m on *Xerophyta*, a fibrous-wooded member of the Velloziaceae. There are two varieties of *P. johnstonii*; the nominate race, which occurs atop Mt. Mulanje and is thought to be common; and var. *roseopurpurea* la Croix & P.J.Cribb, which occurs in the Shire Highlands, on the Zomba Plateau. It may survive still on Mt. Chiradzulu, but could be extirpated or nearly so on Mt. Ndirande. Unfortunately, *Xerophyta* plants are cut and used by the local people for household brushes and brooms; many of the hills have been denuded, severely threatening the existence of this variety. *Polystachya johnstonii* flowers in the spring in nature.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern. This species may also be cultivated in pots, but use an open, medium bark mix. Interestingly, *P. johnstonii* var. *johnstonii* does well in pots, while var. *roseopurpurea* seems to prefer mounts. *Temperature* intermediate to cool during the growth period, but cooler during the winter dormancy. *Light* bright diffused to light shade. *Watering* water, then allow to approach dryness before watering again. Do not keep continuously wet. Start to reduce watering frequency in the autumn, or as the pseudobulbs mature and leaves yellow. Mist roots every 7–10 days during the winter dormancy when plants are deciduous. *Humidity* high during the growing season, average during the winter. *Air movement* good to brisk. *Propagation* by division or seed. It is best to reduce or omit fertiliser during the winter dormancy.

Comments: As mentioned, there are two varieties of *Polystachya johnstonii*, each of which can be quite variable. *Polystachya johnstonii* var. *johnstonii* has

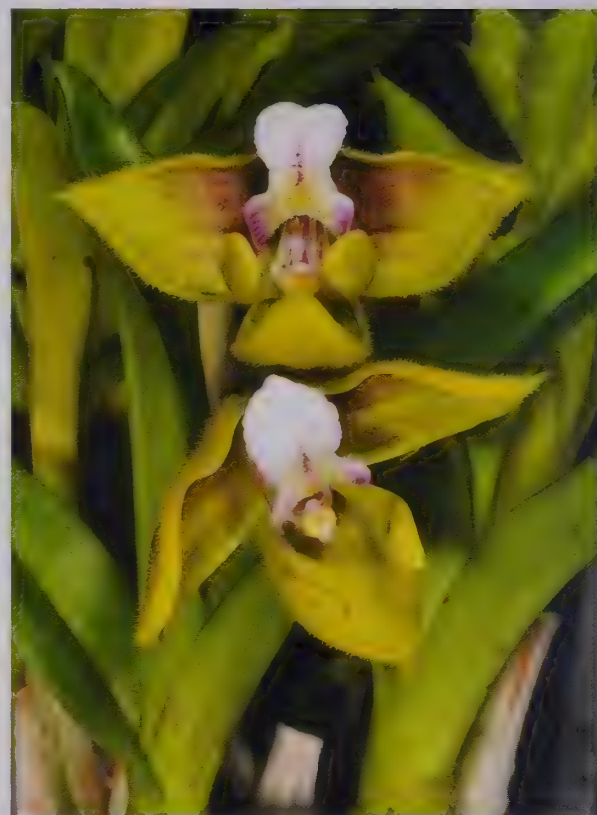


Figure 4.1167 (above) *Polystachya johnstonii* var. *johnstonii* with yellowish green flowers (Grower: Cindy Hill).



Figure 4.1168 (above) *Polystachya johnstonii* var. *johnstonii* with dark yellow flowers (Grower: Cindy Hill).

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yellowish-green to dark yellow flowers, often with reddish suffusion at the base of the lateral sepals. The lip is usually white, with pinkish side-lobes. *Polystachya johnstonii* var. *roseopurpurea* can have predominantly pink flowers, sometimes tinged with green or whitish, or they may be greenish with reddish suffusion at the base of the lateral sepals. The lip is deep purple-pink to pale pink with darker side-lobes. The nominate variety is a substantially larger plant than var. *roseopurpurea*, at least in cultivation. The authors are not certain that the nominate variety is fragrant, but the latter has a very unusual scent. Initially, it has a distinctive, rather unpleasant fishy smell, but if one makes a series of short inhalations, the fragrance seems to change to something sweeter! *Polystachya johnstonii* var. *roseopurpurea* also has the added distinction of having more brightly coloured flowers on a smaller plant. For some, this species, or at least the latter variety, can be difficult to maintain in cultivation.



Figure 4.1169 (above) *Polystachya johnstonii* var. *roseopurpurea* flowering on a mount (Grower: Cindy Hill).

Figure 4.1170 (below) *Polystachya johnstonii* var. *roseopurpurea* growing *in situ*, Malawi (Photo: Eric la Croix).



Figure 4.1171 (above) A paler form of *Polystachya johnstonii* var. *roseopurpurea* (Grower: Marni Turkel).

Figure 4.1172 (below) *Polystachya johnstonii* var. *roseopurpurea* produces an unusual fragrance (Grower: Marni Turkel).

POLYSTACHYA

Polystachya zambesiaca Rolfe

Publication: *Bull. Misc. Inform. Kew* 192 (1895)

Etymology: Meaning from the Zambesi river in southern Africa.

Heterotypic synonyms: *Polystachya hislopianii* Rolfe, *Polystachya lawrenceana* var. *hislopianii* (Rolfe) Kraenzl., *Polystachya phiriae* Fiebeck.

Morphology: Plant to 10 cm tall, clumping, erect, roots numerous, proportionately thick, fleshy. *Pseudobulb* to 1–2 cm tall by 0.5–1 cm wide, oblong to ovoid, somewhat laterally compressed, often ribbed, subtended by leafy bracts, leaves apical, 2–3 in number, eventually deciduous. *Leaf* to 8 cm long by 1.5 cm wide, base conduplicate, lanceolate to oblong, apex acute, lamina flexible, somewhat glaucous, margins often purple in colour. *Inflorescence* a semi-congested raceme, 5–8 cm in length, erect, finely pubescent, floral bracts subtending, infundibuliform, pubescent, flowers secund. *Flower* 1.2–1.8 cm wide, to 20 in number, simultaneous, non-resupinate, widely spreading, dorsal sepal hooded, exterior of flowers pubescent, ovary pubescent. Flowers vary in colour from lemon yellow to buff yellow to yellowish green, the lateral sepals sometimes suffused red at the base, in the colour of the lip, which ranges from white to yellow, and in the amount of colour on the side-lobes of the lip.

Range elevation and habitat: *Polystachya zambesiaca* is an East African species that occurs in Tanzania, Zambia, Malawi, Mozambique, Zimbabwe, and South Africa (provinces of Mpumalanga and Northern Province). It occurs at elevations of 900–2000 m, growing as an epiphyte or lithophyte in woodlands, on rocky hills and sometimes on stunted trees in exposed situations on hilltops. This species may be at risk in Malawi due to logging, but its status in other parts of its range is uncertain. Flowering occurs in April and May.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, with little or no moss around the roots. This species may also be grown potted in an open bark mix. *Temperature* intermediate whilst actively growing, cool during winter dormancy. *Light* bright diffused to light shade. *Watering* allow to approach dryness between waterings. Do not keep continuously wet. Start to reduce frequency of watering in autumn or as the pseudobulbs mature. Mist roots every 7–10 days during the winter months. *Humidity* high during the growing season, average during the winter. *Air movement* good to brisk. *Propagation* by division or seed. It is best to reduce or omit fertiliser during the winter months.

Comments: *Polystachya zambesiaca* is one of the more choice species within this large genus. The flowers are quite variable in colour, with a fuzzy exterior and inflorescence. Of a good size for the genus, the flowers are densely, but attractively arranged, all essentially facing the same direction.



Figure 4.1173 (above) The attractive flowers of *Polystachya zambesiaca* (Grower: Marni Turkel).



Figure 4.1174 (above) A darker *Polystachya zambesiaca* form (Grower: Cindy Hill).

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This species even has a faint fragrance, said to smell like honey or beeswax. In common with *Polystachya campyloglossa*, *P. zambesiaca* grows distinctly larger in cultivation than in nature, up to 20 cm tall. Nonetheless, this is a very worthwhile species. It is interesting to note that although *P. zambesiaca* flowers in April and May in nature, plants have been observed to bloom in almost every month in cultivation, with a slight break during mid-winter.



Figure 4.1175 (above) *Polystachya zambesiaca* produces flowers of a generous size with a faint fragrance (Grower: White Oak Orchids).



Figure 4.1176 (above) *Polystachya zambesiaca* growing *in situ* as a trunk epiphyte in eastern Africa (Photo: Eric la Croix).

Porpax Lindl.

Publication: Lindley, J., 1845, *Edwards's Bot. Reg.* 31(Misc.): 62

Subfamily: Epidendroideae

Tribe: Podochileae

Subtribe: Eriinae

Etymology: From the Greek *porpax* (shield handle), referring to the shield-like leaves.

Type species: *Porpax reticulata* Lindl., 1845, *Edwards's Bot. Reg.* 31(Misc.): 62.

Heterotypic synonyms: *Aggeianthus* Wight, *Lichenora* Wight.

Profile: A genus of approximately 13 species that grow as epiphytes on mossy twigs, branches and trunks in tropical evergreen forest, especially hill and montane forest, or as lithophytes in moss, often by streams at elevations of 100–1900 meters. They occur in India and much of tropical and subtropical Asia.

General morphology: *Plant* sympodial, erect, miniature, clumping, slowly creeping, rhizome branching, mat-forming. *Pseudobulb* discoid, dorsally flattened, covered with fine, fibrous sheaths, leaves 2–3 in number, apical, deciduous. *Leaf* elliptic, ovate or oblong, apex obtuse or acute, lamina sometimes minutely hairy along margin. *Inflorescence* a raceme, peduncle abbreviate, floral bracts enclosing base of flower, borne laterally from base, or terminally from apex of pseudobulb. *Flower* single, rarely 2–3 in number, resupinate, tubular, sepals connate nearly or completely to apex forming a tube and mentum with column foot, petals sometimes hairy, lip small, shorter than petals, enclosed within sepaline tube, obscurely 3-lobed, column short, with foot, pollinia 8.



Figure 4.1177 (above) *Porpax meirax* or possibly *P. fibuliformis*. Unlike *P. elwesii*, these taxa flower with leaves (Grower: White Oak Orchids).

PORPAX***Porpax elwesii*** (Rchb.f.) Rolfe**Publication:** *Orchid Rev.* 16: 8 (1908)

Etymology: Named for Henry J. Elwes (1846–1922), British plant collector, lepidopterist and botanist, known for his collections of lilies from the Himalayas and Korea, and author of the *Monograph of the Genus Lilium*, and *Trees of Great Britain and Ireland*.

Homotypic synonyms: *Eria elwesii* Rchb.f., *Porpax meirax* var. *elwesii* (Rchb.f.) R.C.Srivast.

Heterotypic synonyms: *Eria nummularia* Kraenzl., *Eria semiconnata* Kraenzl., *Porpax nummularia* (Kraenzl.) Smitinand, *Porpax semiconnata* (Kraenzl.) Smitinand.

Morphology: Plant to 4 cm tall when in leaf. Pseudobulb 0.5 cm tall by up to 1 cm wide, wrinkled during bloom, sheaths disintegrating into radiating fibres from apex, bifoliate, deciduous. Leaf 1.5–3.5 cm long by 0.3–0.8 cm wide, base attenuate, narrowly elliptic to elliptic-oblong, apex acute, mucronate, margins with minute glandular hairs. Inflorescence an abbreviated raceme, terete, terminal from apex of pseudobulb, initiating between leaves, but flowering after leaves drop, flowers with single bracts twice as long as ovary. Flower 0.7–1.3 cm long, 1 or rarely 2 in number, tubular, open only at apex, nearly sessile.

Range, elevation and habitat: *Porpax elwesii* grows in Bhutan, Nepal, India (Sikkim, west Bengal, Arunachal Pradesh), Myanmar, Thailand, Vietnam and Peninsular Malaysia. It occurs at elevations of 500–1600 m, often in seasonally wet forest, where it grows as a locally common epiphyte or lithophyte. In Vietnam, it is very rare, occurring in evergreen forest and blooming between May and June. It is usually found in a leafless state, but in areas where the humidity is higher, leaves may persist for 1–2 months. In other parts of its range, this species flowers between December and January.

Culture recommendations: Substrate mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern. This species is not well-suited to potted culture due to its creeping, mat-forming habit. Temperature warm-intermediate to intermediate, but slightly cooler during dormancy. Light medium shade when in leaf, but light shade when deciduous-dormant. Watering water frequently, but allow to dry slightly between waterings during the active growing season. Reduce frequency of watering as leaves start to yellow and pseudobulbs mature, or in the autumn. Mist roots occasionally during the winter dormancy to keep plants from becoming overly desiccated. Humidity high during the growing season, average during dormancy. Air movement good to brisk. Propagation occasionally by division or seed. Fertilise at 1/4 to 1/2 strength weekly, but omit fertiliser during winter dormancy.



Figure 4.1178 (above) A darker *Porpax elwesii* form (Grower: Marni Turkel).



Figure 4.1179 (above) *Porpax elwesii* in habitat, Dien Bien province, Vietnam (Photo: Leonid Averyanov).

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Comments: A strange and curious species, *Porpax elwesii* and its congeners are closely related to *Eria*, although they differ markedly in both plant and flower form. The squat, disc-like pseudobulbs mature as the pair of leaves yellow and prepare to drop, and are covered in sheaths that separate into radiating fibres. The inflorescence initiates while the plant is still in leaf, but the flowers appear after the leaves fall. Notably tubular, the distinctive, dark flowers flare only slightly at the apex. While this species can by no means be called beautiful, it is certainly interesting. Culture can be difficult in the long-term, particularly during dormancy. Flowering in cultivation tends to occur in early to mid-winter.



Figure 4.1180 (right) *Porpax elwesii* growing *in situ* as an epiphyte on a tree in central Thailand, 800 m elevation (Photo: Kobsukj Kaenratana).



Figure 4.1181 (above) Flowers and tubers of *Porpax elwesii* in detail. These plants were photographed growing amongst lichens and moss on a tree trunk in Central Nepal (Photo: Bhakta Bahadur Raskoti).

Porroglossum Schltr.

Publication: Schlechter, F. R. R., 1920, *Repert. Spec. Nov. Regni Veg. Beih.* 7: 82

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Porroglossum mordax* (Rchb.f.) H.R.Sweet, 1970, *Orquideologia* 5: 166.

Etymology: From the Greek *porro* (far, far off) and *glossa* (tongue), thought to refer to the position of the lip in relation to the column or elongated column foot, or possibly to the unusual lip.

Heterotypic synonym: *Lothiania* Kraenzl.

Profile: A genus of approximately 45 epiphytic or lithophytic, miniature species from Colombia, Ecuador, Peru, Bolivia and Venezuela.

General morphology: *Plant* clumping, rarely repent, branching, erect. *Ramicaul* short, covered in sheaths, sometimes blackish in colour, erect. *Leaf* petiolate, narrowly oblong to obovate, leathery, usually verrucose, juvenile foliage often brownish or with darker, reticulate pattern disappearing as foliage matures. *Inflorescence* a raceme, erect to sub-erect, glabrous or with hispid hairs, slender, borne from ramicaul. *Flower* usually singly successive, resupinate or non-resupinate, sepals usually tailed, petals fleshy, small, lip anchor-shaped with basal callus, claw long, bent, attached to back surface of column foot, motile, sensitive, column short, foot much elongated. When callus on lip is stimulated, blade of lip snaps upward to trap pollinator against column, later relaxing and returning to a normal, reset position.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species may also be container grown in tiny pots using moss or a fine bark mix. The two repent species do best when grown on horizontal rafts of cork bark, rough wood shingles or tree fern plaques. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, not wet, maintaining excellent drainage. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Porroglossum*, are prone to infection with bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of such pests.

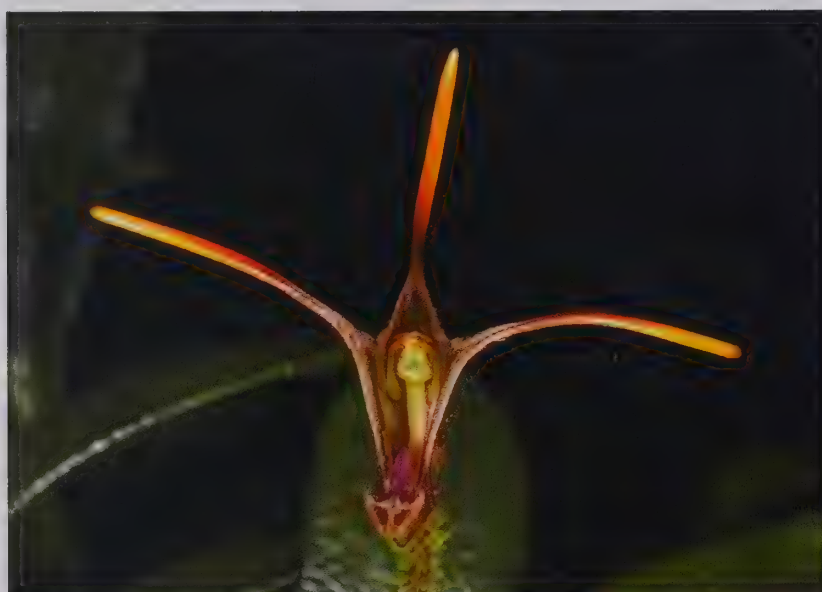


Figure 4.1182 (above) A relatively recently described species, *Porroglossum parsonsii*, from Colombia, is only one of four species in this genus with a bristly inflorescence (Photo: Ron Parsons).

PORROGLOSSUM

Porroglossum andreettae Luer

Publication: *Phytologia* 46: 375 (1980)

Etymology: Named in honour of the late Padre Angel Andreetta (1920–2011) of Cuenca, Ecuador, who discovered this species. Padre Andreetta was a Salesian priest who loved orchids and inspired the Portilla family to start Ecuagenera, now a large and world-renowned orchid nursery in Ecuador.

Morphology: *Plant* 3.5–5 cm, clumping. *Ramical* to 1 cm long, blackish. *Leaf* 2.5–4 cm long by 0.6–0.8 cm wide, narrowly obovate, apex subacute, lamina erect, minutely verrucose, petiole 1–2 cm long. *Inflorescence* a congested raceme, peduncle 4–20 cm in length, erect, glabrous. *Flower* 1–1.2 cm tall, to 3 in number, singly successive, resupinate, widely spreading, triangular in outline, sepals concave, bluntly rounded, tailless. Flowers vary slightly in colour, from cream to tan, sometimes with brownish suffusion in dorsal sepal.

Range, elevation and habitat: *Porroglossum andreettae* occurs in southeastern Ecuador, in the provinces of Morona-Santiago and Zamora-Chinchipe, where it grows epiphytically in tall, diverse rain forest at elevations of approximately 1500 m. This species is considered endangered in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: *Porroglossum* are wonderful little plants to grow, and the genus is small enough that one can obtain most of these highly collectible, hinged-lip species without great difficulty. The fine *Porroglossum andreettae* has small, lightly coloured blooms with concave sepals and relatively short spikes. The flowers are some of many in the genus that are reminiscent of those of *Masdevallia*, and tend to appear between mid-autumn and mid-spring in cultivation.



Figure 4.1183 (above) A tan coloured bloom of *Porroglossum andreettae* (Grower: Russ Varnado).



Figure 4.1184 (above) A pair of paler *Porroglossum andreettae* flowers (Grower: Marni Turkel).

PORROGLOSSUM

Porroglossum dreisei Luer & Andreetta

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 39: 154 (1991)

Etymology: Named in honour of Egon Dreise, of Laval, Quebec, co-discoverer of this species.

Morphology: *Plant* 4–6 cm tall, clumping. *Ramicaul* 0.6–0.8 cm long. *Leaf* 3.5–5 cm long by 0.9–1.2 cm wide, elliptic-obovate, apex obtuse, lamina slightly verrucose, petiole 1–2 cm long. *Inflorescence* a congested raceme, peduncle 16–20 cm in length, erect, glabrous. *Flower* 2.5–3 cm wide, 1–3 in number, singly successive, resupinate, widely spreading, sepals convex, dorsal sepal strongly recurved, lateral sepals coiled. Flowers vary in size, colour (from tan with brownish suffusion to light, reddish brown) and in degree of sepal coiling.

Range, elevation and habitat: *Porroglossum dreisei* is an Ecuadorian endemic that occurs in the province of Morona-Santiago at elevations of approximately 1700 m. It grows as an epiphyte in cool, moist to wet montane forest. This species is considered vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*. It is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: The flowers of *Porroglossum dreisei* are truly stunning. The prominent, yet graceful, sepaline tails are coiled; the dorsal tail is recurved, and the lateral tails stick out to the side, all curling nearly full circle, a feature unique in the genus. Moreover, the flowers are relatively large for the genus, as well as long-lasting, often persisting for a month or more. *Porroglossum* is a favourite genus of the authors, but this species is especially recommended. This taxon generally flowers between late autumn and late spring.



Figure 4.1185 (above) The incredible flower of *Porroglossum dreisei* with its coiled sepaline tails (Grower: Marni Turkel).



Figure 4.1186 (above) The *Porroglossum dreisei* flower is large for the genus (Grower: Ron Parsons).

PORROGLOSSUM

Porroglossum eduardii (Rchb.f.) H.R.Sweet

Publication: *Amer. Orchid Soc. Bull.* 41: 519 (1972)

Etymology: Named in honour of Eduard Klaboch, discoverer of this species. Eduard was a nephew of the famous orchid collector Benedikt Roezl. Eduard collected a number of orchid species with his relative, Frantisek Klaboch (1856–1879), in Ecuador.

Homotypic synonym: *Masdevallia eduardii* Rchb.f.

Morphology: *Plant* 3.5–5.5 cm long, repent, mat-forming, 2–5 cm between ramicauls. *Ramicaul* 0.7–1 cm long. *Leaf* 1.8–2.3 cm long by 0.9–1.2 cm wide, elliptical, apex obtuse, lamina verrucose/rugose, petiole 1–2 cm long. *Inflorescence* a raceme, sub-congested at apex, peduncle 15–21 cm in length, erect, glabrous. *Flower* 1.2–1.5 cm tall, two to four in number, simultaneous, resupinate, widely spreading, sepals tailless, lateral sepals basally connate, inner surface each with two crested keels, apices pointed, dorsal sepaline apex often recurved. Flower colour ranges from orange to nearly red.

Range, elevation and habitat: *Porroglossum eduardii* is found in southern Colombia in the departments of Chocó, Nariño and Valle de Cauca, as well as in the province of Carchi in northern Ecuador. It occurs at elevations of 1900–3070 m. It grows in open vegetation with grass, ferns, shrubs and palms, as well as in wet cloud forest, mossy upper montane pluvial forest and cold, wet, páramo-elfin forest. Flowering may occur in any month. No information about its conservation status could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cold.

Comments: *Porroglossum eduardii* and its rare, close relative, *P. lorenae*, are the only two species of the genus with a distinct, repent growth habit. Both also have inflorescences that carry up to four simultaneous blooms. The brilliant orange to red-orange flowers of *P. eduardii* are a gorgeous colour, though plants can be somewhat shy to bloom in cultivation. There may be a correlation between the size and age of the plant and flowering. Plants seem to flourish when allowed to ramble, whether on a horizontal mount or when creeping through other plants in a collection. This type of situation seems to coax the plants into bloom. The aforementioned *P. lorenae*, from Ecuador, is florally similar, but the flowers are campanulate and nodding, while the sepals are generally more orange in colour, often with yellowish centres. Each of the lateral sepals bears one crested keel, rather than the two of *P. eduardii*. *Porroglossum eduardii* often blooms in cultivation in early to mid-summer, but can flower at other times also.

Figure 4.1189 (overleaf) The orangey red, nodding, campanulate flowers of *Porroglossum lorenae* (Grower: Ron Parsons).



Figure 4.1187 (above) The brilliantly coloured flower of *Porroglossum eduardii* (Grower: Marni Turkel).

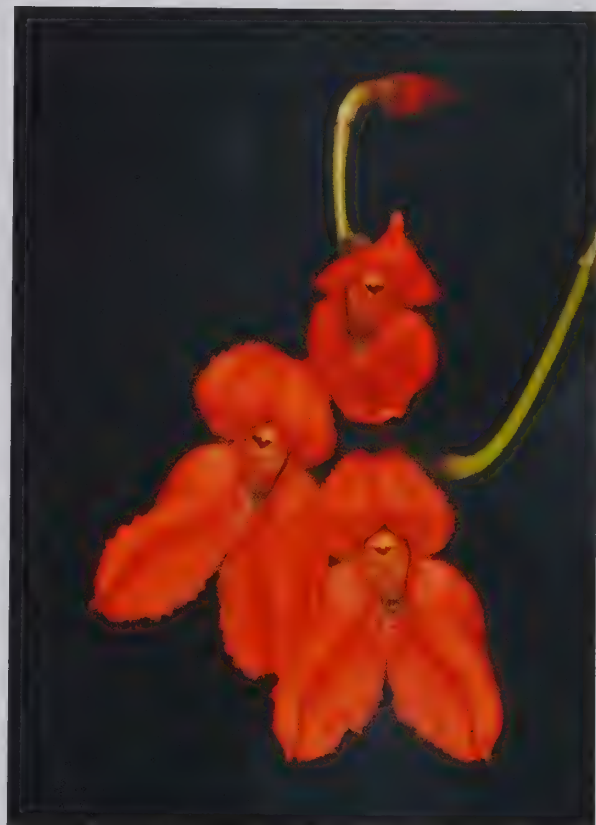


Figure 4.1188 (above) Deserving of cultivation, *Porroglossum eduardii* is a rare, but true beauty (Grower: Mary Gerritsen).



PORROGLOSSUM

Porroglossum hirtzii Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 24: 550 (1987)

Etymology: Named in honour of the discoverer of the species, Alexander Charles Hirtz (1945-), geologist, orchidologist, president of the Latin American Orchid Council, Andean representative to the Conservation Committee of the American Orchid Society and discoverer of many orchid species.

Morphology: *Plant* 3–5.5 cm tall, clumping. *Ramicaul* 1–2.5 cm long, blackish. *Leaf* 4–5 cm long by 0.9–1.1 cm wide, elliptical, apex obtuse to sub-acute, lamina verrucose, petiole blackish, 1.5–2.5 cm in length. *Inflorescence* a congested raceme, peduncle 7–10 cm in length, erect to sub-erect, glabrous. *Flower* to 1 cm tall, 1–3 (rarely more) in number, singly successive, resupinate, spreading, campanulate, sepals tailless with pointed apices, apices flaring forward to incurved. Flowers are white, but the interior and exterior of the sepaline apices vary in colour from the palest pink to rich, rose-pink; flowers also vary in their degree of openness.

Range, elevation and habitat: *Porroglossum hirtzii* has been found in the provinces of Morona-Santiago and Zamora-Chinchi, southern Ecuador, at elevations around 1200 m. It grows epiphytically in cool, mossy cloud forest. No confirmed bloom-time records could be found, but it is very likely that flowering can occur in any month in nature. This species is listed as endangered in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool.

Comments: A charming species, *Porroglossum hirtzii* may flower at any time in cultivation. The long-lasting blooms may persist for up to one month. The most common and desirable form has sepaline apices of rich pink and a purple spot on the apex of the lip. Although many *Porroglossum* can produce long inflorescences that become entangled, those of *P. hirtzii* are relatively short and in proportion to the plant. This species is a favourite amongst *Porroglossum* collectors.



Figure 4.1190 (above) The dainty flowers of *Porroglossum hirtzii* are richly tinged pink or purple (Grower: Marni Turkel).

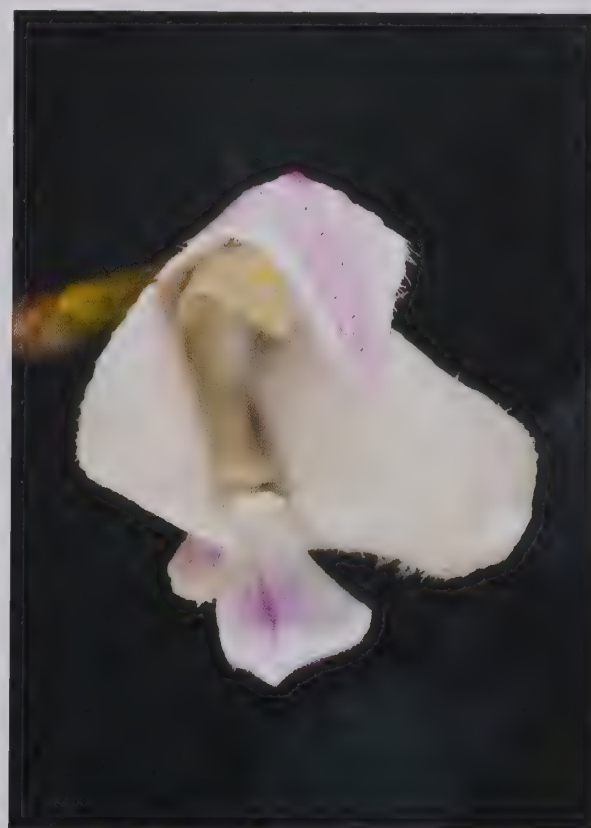


Figure 4.1191 (above) A paler form of *Porroglossum hirtzii* (Grower: Marni Turkel).

PORROGLOSSUM

Porroglossum josei Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 57: 114 (1995)

Etymology: Named for José “Pepe” Portilla (1966-) of Gualaceo, Ecuador, President of the world famous orchid nursery Ecuagenera, who discovered this species.

Morphology: *Plant* 5–11 cm tall, clumping. *Ramical* 0.7–1 cm long. *Leaf* to 12 cm long by 1.2–1.5 cm wide, long petiolate (to 7 cm), narrowly elliptical, apex sub-acute to obtuse, lamina verrucose/rugose. *Inflorescence* a congested raceme, peduncle 8–18 cm in length, erect to sub-erect, glabrous. *Flower* to 2.5 cm tall, to 12 in number, singly successive, resupinate, widely spreading, dorsal sepal proportionately huge, transversely broader, sharply pointed, nearly tailless, lateral sepaline tails longish, slender, straight to distinctively reflexed, lip white with dark, purplish spot. Flowers vary in colour from pink to nearly white, and in the degree of recurvation of the lateral sepaline tails.

Range, elevation and habitat: *Porroglossum josei* was collected in a region of remnant primary lowland forest in western Ecuador, in the province of Esmeraldas, between Lita and Maldonado. It occurs at an elevation of approximately 1000 m. To date, this remains the only known locality for this species (Ivan Portilla, pers. comms.), and only two specimens were ever found. No bloom-time records are known, but it is likely to flower at any time of year, as it does in cultivation. This species is listed as endangered on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: Arguably the most desirable species in the genus, *Porroglossum josei* is certainly one of the rarest and most expensive. When discovered, only two plants were located, one with flowers of a rich pink colour, and the other a nearly white form. To date, it has yet to be rediscovered, and all plants in cultivation are divisions or seedlings of the original collection. Another point of interest is that the plants were found growing at a relatively low elevation for the genus; it is thus not a cool-growing species. The graceful flowers are truly beautiful, particularly in the pink coloured form, with its large, expanded dorsal sepal and narrow, pendent, lateral sepaline tails. Many collectors have likened the flower to a pink jellyfish, and the authors would certainly agree. The flowers can easily persist for up to one month, if not longer, and plants may bloom at any time of year in cultivation.



Figure 4.1192 (above) *Porroglossum josei* has extraordinary blooms with pendent sepaline tails (Grower: Hanging Gardens).



Figure 4.1193 (above) The flower of *Porroglossum josei* is sometimes likened to a pink jellyfish (Grower: Marni Turkel).

PORROGLOSSUM***Porroglossum meridionale* P.Ortiz****Publication:** *Orquideologia* 11: 224 (1976, publ. 1977)

Etymology: From the Latin *meridionalis* (southern), in reference to its Peruvian locality. It was the southernmost species known from this genus at the time of its naming.

Morphology: *Plant* 3.5–5.5 cm tall, clumping. *Ramicaul* 0.5–1 cm long. *Leaf* to 4.5 cm long by 0.8–1 cm wide, narrowly elliptical, apex obtuse to sub-acute, lamina verrucose, ventrally purple, petiole 1–1.5 cm long. *Inflorescence* a congested raceme, peduncle 8–10 cm in length, erect, glabrous. *Flower* 1.6–1.8 cm wide, to 4 in number, singly successive, resupinate, widely spreading, tube campanulate, sepaline tails relatively short, somewhat thick, lip callus short, transverse, pubescent. Flowers vary in colour from pinkish to lilac to purplish, and in the colour of the sepaline tails from pale to rich yellow.

Range, elevation and habitat: *Porroglossum meridionale* occurs in Ecuador, in the province of Morona-Santiago, and Peru, in the department of Huánuco, near Tingo Maria, at elevations of 1400–1700 m. It grows epiphytically in montane cloud forest. No conservation status could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

Comments: *Porroglossum meridionale* is one of the most popular and readily available species in the genus, and it is easy to understand why. The textured, dark green, ventrally maroon, semi-glossy foliage is attractive in its own right, but the pinkish-purple to purple, *Masdevallia*-like flowers on their relatively short spikes are beautiful, long-lasting, and can be prolific, flowering nearly year-round on mature plants. Some may confuse a related species, *P. schramii* Luer, with *P. meridionale*, but the sepaline tails of the former are often longer, the colour tends to be reddish and more dull, the lip callus smooth, in contrast to the pubescent callus of *P. meridionale*, and the underside of the leaves green. The authors find that another related species, *P. agile* Luer, looks much like a pale form of *P. meridionale*, but the ventral surface of its leaves is pale green with fine, dark stippling.

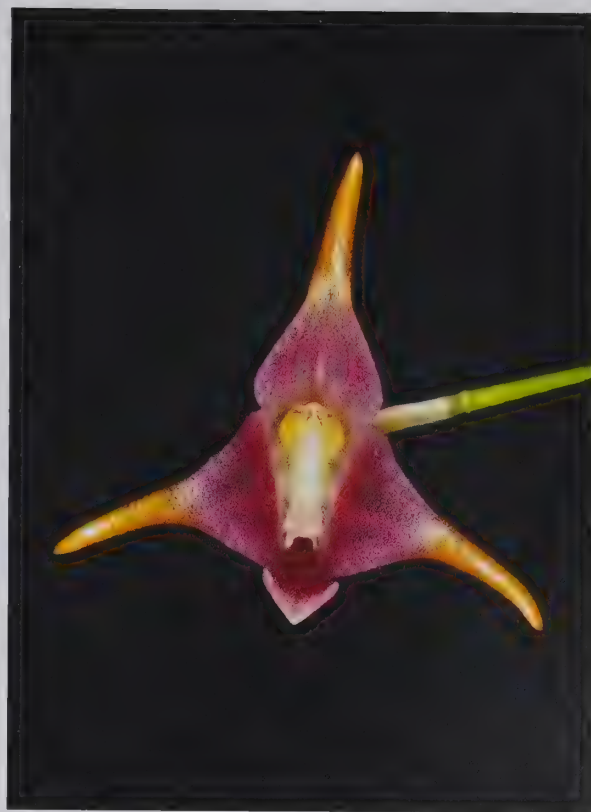


Figure 4.1194 (above) *Porroglossum meridionale* blooms are beautiful and long lasting (Grower: Orchid Species Plus).



Figure 4.1195 (above) *Porroglossum meridionale* has *Masdevallia*-like flowers (Grower: Russ Varnado).

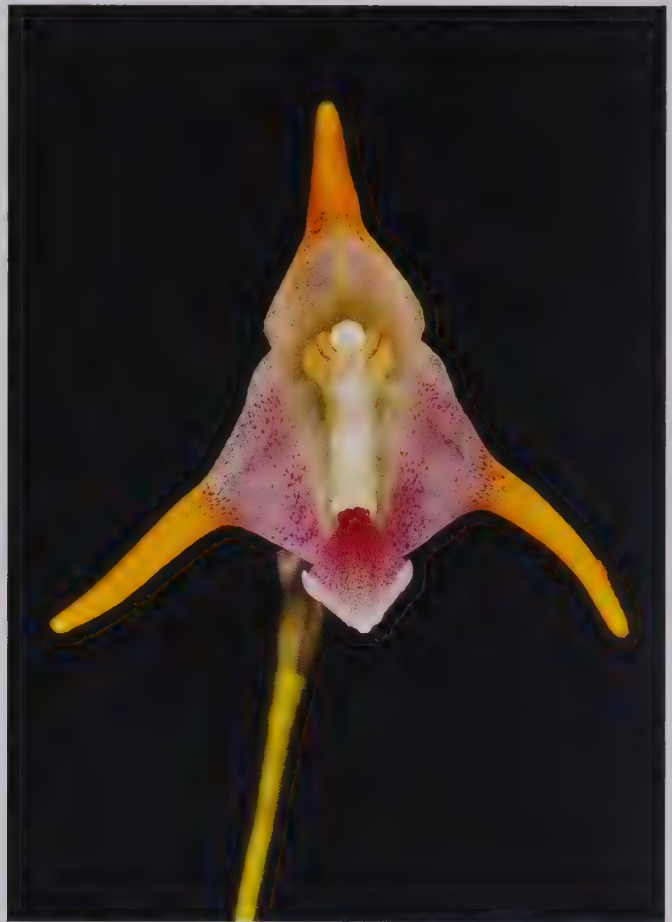


Figure 4.1196 (above) *Porroglossum schramii* (Grower: Marni Turkel). Figure 4.1198 (above) *Porroglossum agile* (Grower: Marni Turkel).
Figure 4.1197 (below) *Porroglossum schramii* (Grower: Russ Varnado). Figure 4.1199 (below) *Porroglossum agile* (Grower: Marni Turkel).

PORROGLOSSUM

Porroglossum mordax (Rchb.f.) H.R.Sweet

Publication: *Orquideologia* 5: 166 (1970)

Etymology: From the Latin *mordax* (biting), probably an allusion to the jagged, gaping sepals of this species, the type species of the genus.

Homotypic synonyms: *Lothiania mordax* (Rchb.f.) Kraenzl., *Masdevallia mordax* Rchb.f.

Heterotypic synonyms: *Masdevallia colombiana* (Schltr.) P.H.Allen, *Porroglossum colombianum* Schltr., *Scaphosepalum antioquiense* Kraenzl.

Morphology: *Plant* 6–10 cm tall, clumping. *Ramical* 1–2 cm long, blackish. *Leaf* 5–8 cm long by up to 1.3 cm wide, narrowly obovate to narrowly elliptical, apex sub-acute, slightly verrucose, petiole 1.5–3 cm long. *Inflorescence* a congested raceme, 10–15 cm in length, erect, glabrous. *Flower* 2–2.5 cm tall, 1–3 in number, singly successive, resupinate, spreading, sepals bristly, sepaline margins coarsely erose, sepaline tails thick, blunt, forward-pointing. Flowers vary in size and degree of openness, length of sepaline tails, and in the colour of the base of the sepals from yellow to greenish.

Range, elevation and habitat: *Porroglossum mordax* occurs locally in the western and central cordilleras of Colombia, in the departments of Cauca and Antioquia. It grows at elevations of 1700–2400 m in montane cloud forest. No confirmed bloom-time records for this species are known. No information on conservation status could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool.

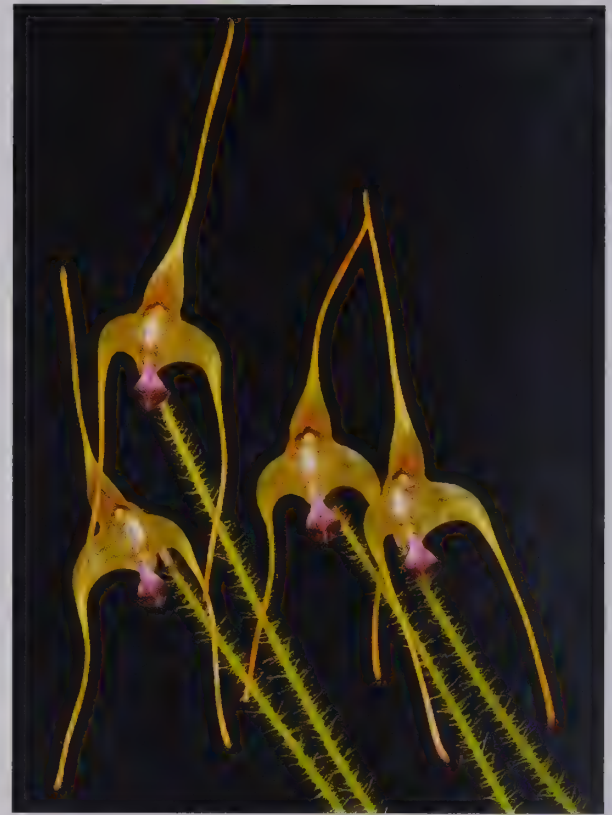
Comments: Despite being the type species for the genus, *Porroglossum mordax* is anything but typical. In fact, the bizarre and appealing, bristly flowers are unique and certainly unmistakable. The sepaline tails can be short to medium in terms of length, and are thick and fleshy. Relatively uncommon in collections, *P. mordax* is a shy bloomer that rarely produces many flowers, but when in flower it is sure to catch the eye. Flowering usually occurs between early spring and early summer in cultivation, but occasionally at other times.



Figure 4.1200 (above) The bristly flower of *Porroglossum mordax* is certainly recognisable (Grower: Russ Varnado).



Figure 4.1201 (above) The *Porroglossum mordax* bloom in profile (Grower: Russ Varnado).

PORROGLOSSUM***Porroglossum muscosum*** (Rchb.f.) Schltr.**Publication:** *Repert. Spec. Nov. Regni Veg. Beih.* 7: 83 (1920)**Etymology:** From the Latin *muscosus* (mossy), referring to the fuzzy peduncle.**Homotypic synonym:** *Masdevallia muscosa* Rchb.f.**Heterotypic synonyms:** *Masdevallia xipheres* Rchb.f., *Porroglossum xipheres* (Rchb.f.) Garay, *Scaphosepalum xipheres* (Rchb.f.) Schltr.**Morphology:** Plant 5–15 cm tall, rarely slightly larger, clumping to shortly repent. *Ramicaul* 1–4 cm long. *Leaf* 4–15 cm long by 1–1.8 cm wide, narrowly elliptical, apex acute to rounded, lamina verrucose, petiole 1–4 cm long. *Inflorescence* a congested raceme, 8–26 cm in length, erect to sub-erect, bristly. *Flower* 2.5–7 cm tall, to 3 in number, singly successive, resupinate, sepaline cup smallish, campanulate, sepaline tail length medium to long, erect to noticeably recurved. This species varies greatly in plant size, foliage colour (from light to dark green to purplish), leaf substance (from thinly to thickly leathery), and length of inflorescence. The flowers vary in colour from pale greenish-yellow to bright yellow to brownish to pinkish to dark maroon, as well as in sepaline tail length and overall flower shape.**Range, elevation and habitat:** *Porroglossum muscosum* is a rather frequent and widespread species, occurring through the Andes Mountains from Venezuela (state of Táchira) and Colombia (departments of Antioquia, Cauca, Norte de Santander and Putumayo) south to Ecuador (provinces of Carchi, Imbabura, Morona-Santiago, Pichincha and Zamora-Chinchi) at elevations of 1900–2600 m. It grows epiphytically and occasionally terrestrially along road cuttings in montane humid forest and cloud forest. Flowering can occur in any month in nature.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate-cool to cool.**Comments:** *Porroglossum muscosum*, once known as *Masdevallia muscosa* due to the floral similarity with members of the latter genus, is the largest and most variable species of this genus. There are numerous colour forms and a wide range of flower sizes. Many plants, when viewed individually, may look like distinct species, but there does not seem to be a consistent set of differentiating features. The morphology of the lip and petals of the different forms are evidently indistinguishable. Nonetheless, the authors have not seen gradations between the various forms. Interestingly, the purple form illustrated has a wonderful fragrance, a feature not noticed in any other *Porroglossum* species. The bristly peduncle is only found in a few other related species of the genus, namely *P. echidna*, *P. hystrix* and *P. parsonsii*. Dr. C. A. Luer comments that *P. echidna* may be nothing more than a high-**Figure 4.1202 (above)** The inflorescence of *Porroglossum muscosum* is obviously bristly (Grower: Ron Parsons).**Figure 4.1203 (above)** The relatively large flower of *Porroglossum muscosum* in detail (Grower: Marni Turkel).

PORROGLOSSUM

elevation form of *P. muscosum* with verrucose sepals and clavate sepaline tails (Luer, 1987). *Porroglossum muscosum* is easy to grow, forming large clumps quite readily, and the typical form at least is readily available. This species can flower at any time in cultivation.

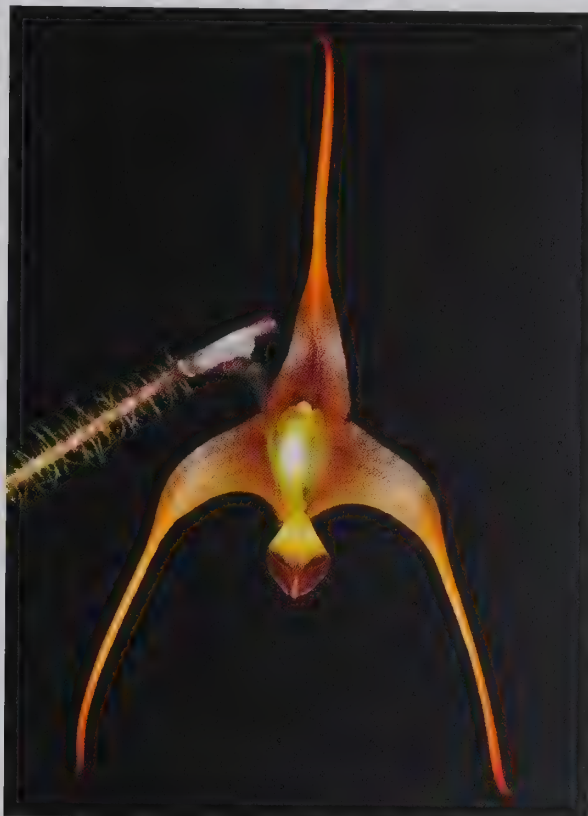


Figure 4.1204 (above) A *Porroglossum muscosum* dark yellow form (Grower: Marni Turkel).

Figure 4.1205 (below) A *Porroglossum muscosum* orangey-red form (Grower: Russ Varnado).

Figure 4.1206 (above) A *Porroglossum muscosum* coppery flowered form (Grower: Marni Turkel).

Figure 4.1207 (below) A *Porroglossum muscosum* pink and yellow form (Grower: Marni Turkel).



PORROGLOSSUM

Porroglossum portillae Luer & Andreetta

Publication: *Phytologia* 47: 81 (1980)

Etymology: Named in honour of Mario Portilla (1956-), co-founder of Ecuagenera orchid nursery and a co-discoverer of this species.

Morphology: Plant 5.5–7.5 cm tall, branching. *Ramicaul* 1–1.5 cm long, blackish. *Leaf* 4.5–6 cm long by 1.2–1.5 cm wide, leaf elliptical, apex obtuse, lamina faintly verrucose, petiole 1–2 cm long. *Inflorescence* a raceme, 8–12 cm in length, erect, glabrous. *Flower* to 1.5 cm wide, few in number, singly successive, non-resupinate, widely spreading, open-campanulate, sepaline tails thick, medium length, apices rounded, recurved slightly, lip blade narrowly cuneate, glabrous. The flower can vary in the amount of pinkish suffusion and spotting.

Range, elevation and habitat: *Porroglossum portillae* occurs in Ecuador, in the provinces of Morona-Santiago and Pastaza. It grows as an epiphyte in wet forest at elevations of 790–1500 m. No confirmed bloom-time records could be found for this species in nature, but it is highly likely to flower at any time of year. This species is listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: The delightful *Porroglossum portillae* is one of four or possibly more consistently non-resupinate species in the genus. It has a striking floral shape with longish, thickened sepaline tails, flowers that are quite colourful when examined closely, and a sensitive, mobile lip of great interest. The other reportedly non-resupinate species are *P. dalstroemii* Luer, *P. gerritsenianum* Luer & Parsons and *P. jesupiae* Luer; of these, only the latter could be confused with *P. portillae*, with generally similar features, but larger flowers produced on a shorter peduncle. Interestingly, the very rare *P. jesupiae* was described as having resupinate flowers, yet the only clone known to the authors has non-resupinate blooms. In cultivation, *P. portillae* tends to bloom between mid-winter to early summer, and the flowers last for 2–3 weeks.



Figure 4.1209 (above) The colourful flower of *Porroglossum portillae*, a fine species from Ecuador (Grower: Ron Parsons).



Figure 4.1210 (above) *Porroglossum portillae* has a striking flower with a mobile lip (Grower: Ron Parsons).

Figure 4.1208 (facing page) The *Porroglossum hystrix* bloom in profile. This taxon is closely related to *P. muscosum* (Grower: Marni Turkel).



Figure 4.1211 (above) *Porroglossum dalstroemii* also has non-resupinate flowers (Grower: Russ Varnado).

Figure 4.1212 (below) A different *Porroglossum dalstroemii* clone (Grower: Orchid Species Plus).

Figure 4.1213 (above) The non-resupinate *Porroglossum gerritsenianum* has richly coloured blooms (Grower: Ron Parsons).

Figure 4.1214 (below) *Porroglossum jesupiae* has similar, albeit larger flowers (Grower: Marni Turkel).

PORROGLOSSUM

Porroglossum rodrigo H.R.Sweet

Publication: *Orquideologia* 9: 129 (1974)

Etymology: Named for the late Rodrigo Escobar (1935–2009) of Colombia, the well known orchidist who discovered this species.

Morphology: *Plant* 2.2–5 cm tall, clumping. *Ramicaul* to 0.5 cm long. *Leaf* 2.5–4.5 cm long by 0.9–1.2 cm wide, elliptical, apex obtuse to sub-acute, lamina reticulate, petiole 1–1.5 cm long. *Inflorescence* a congested raceme, peduncle 6–10 cm in length, erect, glabrous. *Flower* to 1 cm tall, to several in number, singly successive, resupinate, widely spreading, sepaline tube campanulate, dorsal sepal tailless, sharply pointed, lateral sepals downward-pointing, relatively short, terete to clavate. The flowers are variable in sepaline tail colour, from pale yellow to bright orange, and in shape from clavate to terete. The colour of the lip also varies, from whitish to densely spotted with purple.

Range, elevation and habitat: *Porroglossum rodrigo*, a Colombian endemic, has been found in two localities in the department of Antioquia. It occurs in the municipalities of Caldas (south and east of Medellín) and Yarumal (north of Medellín). It grows as an epiphyte in moist, montane forest at approximately 1700 m elevation. No conservation status could be found. This species may flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: Another popular species in this genus, *Porroglossum rodrigo* has very charming, distinctive flowers of a rich, translucent shade of purple, with bright orange to yellow sepaline tails that can be club-like or of a uniform width. Mature plants may bloom nearly year-round, individual flowers lasting for up to several weeks. The small plants also have beautiful, dark green foliage and shorter inflorescences than most species in the genus, making this a true treasure amongst miniatures.



Figure 4.1215 (above) *Porroglossum rodrigo* has sepaline tails that may be club-like or uniform (Grower: Ron Parsons).



Figure 4.1216 (above) A *Porroglossum rodrigo* form with uniform sepaline tails (Grower: Hanging Gardens).

PORROGLOSSUM***Porroglossum sergioi*** P.Ortiz**Publication:** *Orquideologia* 10: 251 (1975)

Etymology: Named for Padre Sergio Restrepo (1939–1989) of Medellín, Colombia, well known orchidologist, published poet, and discoverer of this species. Tragically, this Jesuit priest was brutally killed by paramilitaries and his body left in front of his church in the parish of Tierralta, Colombia.

Morphology: *Plant* 6.5–11 cm, clumping. *Ramicaul* 1.5–2.5 cm long. *Leaf* 5–9 cm long by 0.6–1 cm wide, petiole narrow, 2–4 cm long, lamina narrowly elliptical, apex acute. *Inflorescence* a congested raceme, 20–25 cm peduncle, erect to sub-erect, glabrous. *Flower* 3–4 cm wide, singly successive, to three in number, resupinate, dorsal sepaline tail relatively short, sub-erect to recurved, lateral sepaline tails long, slender, outstretched, ovaries minutely verrucose. This species is not highly variable, although that may be due to the limited number of individual clones in cultivation.

Range, elevation and habitat: *Porroglossum sergioi* is known only from one region in the department of Antioquia, Colombia. It occurs in the municipality of Frontino, above Nutibara, at elevations of 2000–2500 m. This species was found growing with *P. nutibara*, and no collection records for either species have been reported from elsewhere. No habitat information for either species is available, even from the original descriptions, but these epiphytes are likely to grow in montane cloud forest. No confirmed bloom-time information could be found. Additionally, the conservation status of this species is unknown, but narrow endemics are always of concern, and it is likely to be threatened by human activities.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: A must-have species, *Porroglossum sergioi* has relatively large, elegant, soft-pink flowers. The *Masdevallia*-like shape of the blooms, with their long, sweeping sepaline tails, adds a particular grace and beauty to its flowers, making it amongst the finest in the genus. As mentioned, *P. sergioi* was found growing with *P. nutibara*, another lovely species, and interestingly, neither has been found elsewhere to date. *Porroglossum sergioi* was originally named *P. sergii* in the original description, but this orthographic mistake was corrected (Luer, 1987). It tends to flower between late spring and early autumn in cultivation.



Figure 4.1217 (above) *Porroglossum rodrigoii* produces elegant, spreading flowers of soft-pink (Grower: Ron Parsons).

Figure 4.1218 (facing page) *Porroglossum nutibara* is a related, sympatric taxon (Grower: Hanging Gardens).



PORROGLOSSUM

Porroglossum teaguei Luer

Publication: *Phytologia* 46: 381 (1980)

Etymology: Named for Walter Teague (1926–2013) of San Francisco, California, who was born in Ecuador. He discovered this and many other species of orchids.

Morphology: *Plant* 6–11.5 cm tall, clumping. *Ramical* to 1.5 cm long. *Leaf* 5–10 cm long by 1–1.3 cm wide, narrowly obovate, apex sub-acute, lamina slightly verrucose. *Inflorescence* a congested raceme, peduncle to 25 cm in length, erect to sub-erect, glabrous. *Flower* 3.5–4 cm wide, singly successive, to 3 in number, successive, usually resupinate, widely spreading, sepaline tube campanulate, dorsal sepal recurved with sepaline tail hidden from frontal view, much shorter than lateral sepals, lateral sepals long, filiform, outstretched, ovary verrucose. The range of variation is unknown, although the authors have noted some variation in the posture and length of the lateral sepaline tails.

Range, elevation and habitat: *Porroglossum teaguei* has been found just once, near Mindo, province of Pichincha, Ecuador, at an elevation of 2200 m. When discovered, it was growing as a road bank terrestrial with *P. amethystinum* (Rchb.f) Garay, a locally abundant species. No bloom-time records could be found, but it is likely to bloom in any month as it does in cultivation. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: *Porroglossum teaguei*, with its gorgeous, translucent purplish-pink flowers, has become relatively common in cultivation even though all plants are apparently derived from the original plant collected by Walter Teague. The actual flower is quite small, but the long, thread-thin tails are often orientated nearly straight to each side, giving it a spread of up to 4 cm. It was found growing with *P. amethystinum*, a smaller species with similar colouration that is nonetheless readily distinguishable; the latter species has much shorter, pendent, lateral sepaline tails, lacks a dorsal sepaline tail, and has a smooth ovary. Both species are highly desirable selections for any cool-growing collection, and both may bloom at any time of year. However, *Porroglossum teaguei* is quite floriferous, whereas *P. amethystinum* can be shy to flower.

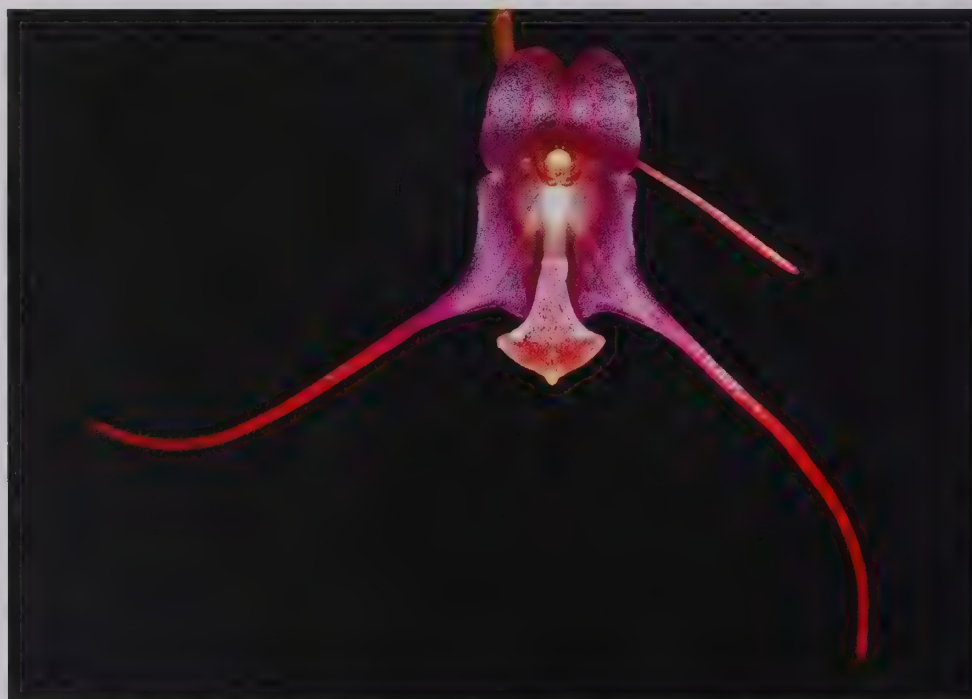


Figure 4.1219 (above) The small, very pretty flower of *Porroglossum teaguei* (Grower: Marni Turkel).
Figure 4.1220 (facing page) The smaller flower of *Porroglossum amethystinum* (Grower: Mary Gerritsen).



Promenaea Lindl.

Publication: Lindley, J., 1843, *Edwards's Bot. Reg.* 29 (Misc.): 13

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Zygopetalinae

Type species: *Promenaea stapelioides* (Link & Otto) Lindl., 1843, *Edwards's Bot. Reg.* 29(Misc.): 13.

Etymology: From the Greek *Promeneia*, a priestess at Dodona mentioned by Herodotus in his chronicles.

Profile: A relatively small genus of approximately 20 epiphytic species endemic to southeastern Brazil. They are generally found in shady, humid forest along the Atlantic-facing slopes of the Serra do Mar, at elevations of 200–2000 m.

General morphology: *Plant* erect, clumping, to shortly repent, branching, rooting at base, roots numerous. *Pseudobulb* broadly elliptic to ovoid, angular (often tetragonal), slightly compressed laterally, subtended by smaller, similar, imbricating leafy bracts, leaves apical, 1–3 in number. *Leaf* lanceolate, apex acute, lamina thinly leathery, slightly plicate, flexible, often pale or bluish green. *Inflorescence* a one to few-flowered raceme, usually shorter than leaves, slender, ascending to descending, with subtending floral bracts, lateral, axillary between leafy bracts, from newly maturing growths. *Flower* resupinate, spreading to widely spreading, shallowly campanulate, sepals and petals free, subsimilar, fleshy, lateral sepals joined to column foot forming short mentum, lip tri-lobed, clawed, side-lobes usually prominent, erect to sub-erect, with often transverse callus on disc, column straight, foot short to long, pollinia 4 in two unequal pairs.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. Plants may also be grown in pots using moss or a fine bark mix. *Temperature* intermediate-cool to cool. *Light* light shade to medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. Plants can develop black spots on the leaves or pseudobulbs. To avoid this, increase air movement, watering early in the day. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency and strength of fertiliser during winter.

Comments: *Promenaea* is an underappreciated genus of striking miniatures. Only half a dozen or so of the species are seen with any regularity in cultivation, and the remainder are quite rare. Many may not be in cultivation outside of Brazil, if they are even cultivated at all. Information, including that of the original descriptions, is scant and lacking in detail, making identification of a number of the taxa very difficult.

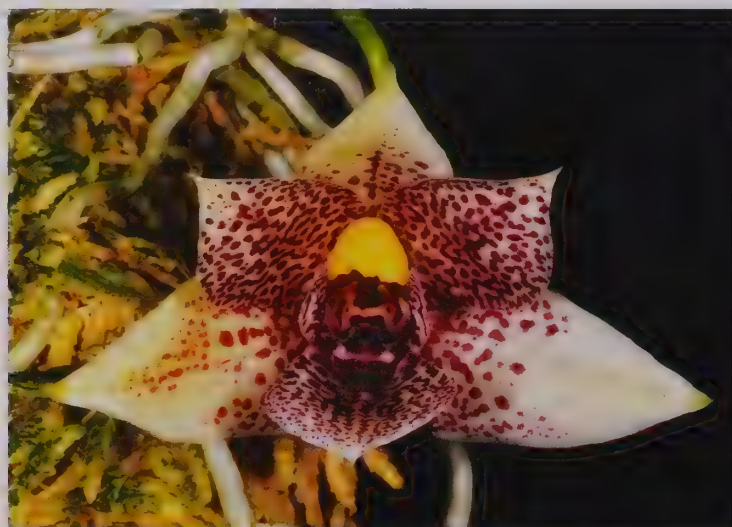


Figure 4.1221 (above) This plant, labelled as *Promenaea riograndensis*, looks suspiciously like *P. lentiginosa* (Grower: Ron Parsons).

PROMENAEA

Promenaea lentiginosa (Lindl.) Lindl.

Publication: *Edwards's Bot. Reg.* 29 (Misc.): 13 (1843)

Etymology: From the Latin *lentiginosus* (mottled, freckled), referring to the patterns on the flowers.

Homotypic synonyms: *Maxillaria lentiginosa* Lindl., *Zygopetalum lentiginosum* (Lindl.) Rchb.f.

Morphology: *Plant* to 10 cm tall. *Pseudobulb* to 2.5 cm tall by 2 cm wide, ovoid, bifoliate. *Leaf* to 7.5 cm long by 2 cm wide. *Inflorescence* a raceme, 2.0–3.5 cm in length, ascending. *Flower* to 3.5 cm wide, pale yellow, petals densely spotted maroon, sepals less densely spotted, but more so at base, lip base markings semi-solid to densely spotted, lip mid-lobe finely spotted on distal half, lip side-lobes densely marked to solid at base, spotted or barred distally, callus transverse, squarish, tridentate.

Range, elevation and habitat: *Promenaea lentiginosa* is endemic to the state of Rio de Janeiro, Brazil, in the moist to wet montane forest of the Serra do Mar, where it grows in shaded conditions. Flowering occurs in late summer in nature. No information could be found on the conservation status of this species.

Culture recommendations: See general culture notes for the genus.

Comments: As mentioned, several species of *Promenaea* are difficult to identify due to their similar plant and floral characteristics. This species has been seen relatively recently with some regularity in the United States, but nearly all plants have been of the clone called 'Pololei Wonder'. *Promenaea lentiginosa* has lovely, pale yellow flowers that are variably marked with a net-like overlay of maroon spotting of various sizes. Every species in this collectible genus is a treasure, including this one. *Promenaea lentiginosa* tends to flower during the summer months in cultivation, but it has been seen blooming at other times also.



Figure 4.1222 (above) The substantial flowers of the *Promenaea lentiginosa* clone 'Pololei Wonder' (Grower: Mary Gerritsen).



Figure 4.1223 (above) The flower of *Promenaea lentiginosa* 'Pololei Wonder' (Grower: Mary Gerritsen).

Figure 4.1224 (below) A finely spotted *Promenaea lentiginosa* (Grower: Gerardus Staal).

Figure 4.1225 (facing page) This unidentified species, photographed in a state park in São Paulo state, Brazil, appears close to *Promenaea lentiginosa* (Photo: Leonardo Desordi Lobo).



PROMENAEA

Promenaea ovatiloba (Klinge) Cogn.

Publication: in C. F. P. von Martius & auct. suc. (eds.), *Fl. Bras.* 3(6): 468 (1906)

Etymology: From the Latin *ovati* (egg-shaped) and *lobi* (lobes), referring to the ovate lateral lobes of the lip.

Homotypic synonym: *Zygopetalum ovatilobum* Klinge.

Morphology: *Plant* 7.5–12 cm tall, clumping. *Pseudobulb* to 2.5 cm tall by up to 2 cm wide, ovoid, tetragonal, with 2–4 leafy bracts, leaves 1–3 in number. *Leaf* to 12 cm long by up to 3 cm wide, elliptical to lanceolate, apex acute, acuminate, sub-erect to spreading, greyish-green. *Inflorescence* a raceme, to 6 cm in length, sub-erect to descending. *Flower* 3–4 cm wide, 1–2 in number, simultaneous, widely spreading. Flowers vary slightly in shape, as well as in the size of the maroon blotch on the basal half of the ventral side of the column. The lateral lobes of the lip usually lack markings, but may have maroon barring or spotting on the distal half.

Range, elevation and habitat: *Promenaea ovatiloba* is endemic to the state of Espírito Santo, Brazil. A rare species, it is found at relatively low elevations from 20–200 m in the Atlantic rainforest, growing epiphytically on tree trunks, or lithophytically on mossy rocks.

Culture recommendations: See general culture notes for the genus.

Comments: *Promenaea ovatiloba* is possibly the most commonly available species in the genus after *P. xanthina* and *P. stapelioides*, but it is still relatively uncommon in collections. The nearly unmarked flowers of soft yellow have a distinct maroon blotch on the underside of the column; this varies in size and intensity, and is believed to ensure that the pollinator does not miss its target. A rare variant lacks this characteristic column blotch. There is a relatively recently described, very dark red variety of this species from Espírito Santo, *P. ovatiloba* var. *robertii* L.C. Menezes. This plant was collected as part of a clump of plants found on a fallen tree; when it later bloomed, it was the only plant to exhibit dark flower colouration. All other plants exhibited the typical flower colour. Flowering typically occurs between mid-spring and mid-summer in cultivation.



Figure 4.1226 (above) The soft yellow blooms of *Promenaea ovatiloba*. A form is known in which the flowers are entirely dark red (Grower: Andy's Orchids).

PROMENAEA

Promenaea rollissonii (Lindl.) Lindl.

Publication: *Edwards's Bot. Reg.* 29 (Misc.): 13 (1843)

Etymology: Named for the 19th century nurserymen and orchid enthusiasts, Messrs. Rollisson & Sons of Tooting, England.

Homotypic synonyms: *Maxillaria rollissonii* Lindl., *Zygopetalum rollissonii* (Lindl.) Rchb.f.

Heterotypic synonyms: *Promenaea citrina* W.Bull ex Regel, *Promenaea paulensis* Schltr., *Promenaea rollissonii* var. *obtusa* Regel.

Morphology: *Plant* to 10 cm tall. *Pseudobulb* to 2.5 cm tall by 2.5 cm wide, sub-orbicular, shiny, leaves apical, 2–3 in number. *Leaf* to 9 cm long by 2.5 cm wide, sessile, lanceolate-oblong, apex acute, lamina sub-erect, arcuate. *Inflorescence* a raceme, to 6 cm in length, spreading to descending. *Flower* to 4 cm wide, 2 or rarely 3 in number, simultaneous, spreading, nodding slightly, segments palest yellow, spotted with wine red, lip lateral lobe margins minutely dentate, callus transverse with two apical teeth. Flower pattern varies greatly; sepals (except apices) finely to boldly spotted with wine red, lip spotted finely to boldly, but base of lip (including side-lobes and callus) densely spotted to blotched.

Range, elevation and habitat: *Promenaea rollissonii* occurs in southeastern Brazil in the states of São Paulo, Paraná, Santa Catarina and Rio Grande do Sul, where it is found in wet, montane forest. No elevational or conservation status information could be found. Flowering occurs in late summer in nature.

Culture recommendations: See general culture notes for the genus.

Comments: This highly variable species was known for many years as *Promenaea paulensis*, and many plants in cultivation are still labelled as such. The pattern of the flowers in *P. rollissonii* is difficult to describe in a truly representative manner, but whatever the case, the blooms are always attractive, whether densely or lightly spotted, or boldly or faintly marked. Of the available species of *Promenaea*, this species seems most similar to *P. lentiginosa*. Literature on all but the most common and distinctive species is scant at best and much confused, and the differences between taxa ill-defined. *Promenaea rollissonii* appears to differ from *P. lentiginosa* mostly in the shape of its callus and the size of its spotting. *Promenaea rollissonii* tends to bloom in the summer months in cultivation, but plants have also been seen flowering in autumn and winter.



Figure 4.1227 (above) *Promenaea rollissonii* produces blooms of white that are prettily patterned with spots of purplish colouration (Grower: Gerardus Staal).



Figure 4.1228 (above) A more strongly spotted *Promenaea rollissonii* form, with a rather captivating bloom (Grower: Marni Turkel).

PROMENAEA

Promenaea silvana F.Barros & Cath.

Publication: *Hoehnea* 21: 94 (1994, publ. 1995)

Etymology: Named for Señor Edmundo Ferreira da Silva, known for his contributions to the orchid knowledge of southern Bahia, Brazil, and who discovered this species.

Morphology: *Plant* to 10 cm tall, clumping. *Pseudobulb* to 2 cm tall by up to 1.3 cm wide, ovoid, bifoliate. *Leaf* to 8 cm long by 1.5 cm wide, oblong-lanceolate, apex acute, sub-erect to spreading, lamina arcuate, greyish-green in colour. *Inflorescence* a raceme, to 7.5 cm in length, ascending to descending. *Flower* 3.5–4 cm wide, single, resupinate, spreading. Flowers vary in the fullness of the segments, in colour from bright yellow to orange-yellow, as well as in the size, number and density of red, transverse bars on the lip. The base of the lip, callus and side-lobes can also be white.

Range, elevation and habitat: *Promenaea silvana* is endemic to the state of Bahia, southern Brazil, where it grows as an epiphyte in moist montane forest at elevations of 500–1000 m. No conservation status nor bloom-time records could be found.

Culture recommendations: See general culture notes for the genus.

Comments: Rarely seen in collections, at least in the United States, *Promenaea silvana* deserves to be more widely grown. If plants are obtained, they should be propagated for dispersal to other collectors. The highly attractive, bright yellow flowers are of a different hue than those of *P. xanthina*, and may even be orange-yellow in colour. The transverse, faint to bold red barring on the lip is also distinctive. In common with many of its congeners, *P. silvana* flowers in the summer in cultivation.



Figure 4.1229 (above) The attractive and bright flower of *Promenaea silvana* has transverse barring on its lip (Grower: Marni Turkel).



Figure 4.1230 (above) A *Promenaea silvana* form with orangey flowers (Grower: Ron Parsons).

Figure 4.1231 (below) A *Promenaea silvana* form of deep yellow, its barring being especially apparent (Grower: Marni Turkel).

PROMENAEA

Promenaea stapelioides (Link & Otto) Lindl.

Publication: *Edwards's Bot. Reg.* 29 (Misc.): 13 (1843)

Etymology: From the name *Stapelia*, a genus of succulents in the Apocynaceae (formerly Asclepiadaceae), and the Latin suffix *oides* (like), referring to the similarity of the dark-barred flowers to certain species of these popular succulents.

Homotypic synonyms: *Cymbidium stapelioides* Link & Otto, *Maxillaria stapelioides* (Link & Otto) Lindl., *Peristeria stapelioides* (Link & Otto) Loudon, *Zygopetalum stapelioides* (Link & Otto) Rchb.f.

Heterotypic synonym: *Promenaea stapelioides* var. *macrantha* Hoehne.

Morphology: *Plant* to 10 cm tall, clumping. *Pseudobulb* to 3 cm tall by 2 cm wide, sub-orbicular to ovoid, slightly tetragonal, 2–4 leafy bracts, unifoliate or bifoliate. *Leaf* to 12.5 cm long by 2.5 cm wide, narrowly ovate to oblong-lanceolate, conduplicate, apex acute, lamina spreading to sub-erect, greyish-green in colour. *Inflorescence* a raceme, 5–8 cm long, descending to slightly ascending. *Flower* to 5 cm wide, to 2 in number, simultaneous, long-lasting, fragrant. Flower varies in density of network of maroon to blackish maroon spots and barring on petals, from sparse to very dense, and sometimes nearly obscuring green background colour. The pattern on the sepals may be dense to nearly lacking.

Range, elevation and habitat: *Promenaea stapelioides* grows in southeastern Brazil, in the states of São Paulo, Rio de Janeiro, Paraná and Santa Catarina at elevations from 400–1000 m. It occurs in cool, wet, montane forest as a low to mid-tree level epiphyte, or occasionally as a lithophyte. *Promenaea stapelioides* is found in humid and shady situations, often near water courses, and is locally common. Flowering generally occurs between December and April.

Culture recommendations: See general culture notes for the genus.

Comments: An exceptional and popular species, *Promenaea stapelioides* is found in many collections around the world. This species has much to offer any orchid enthusiast and is highly recommended. It has gorgeous, proportionately large, long-lasting flowers that are strikingly marked with closely set, blackish-purple bars. Plants are easy to obtain and cultivate, and can adapt to a variety of culture conditions. The blooms are surprisingly variable in size, colour and patterning. In particular, the sepals can be densely striped to almost wholly lacking in markings. Flowering in cultivation generally occurs between late spring and early autumn.



Figure 4.1232 (above) The beautiful, richly coloured flower of *Promenaea stapelioides* is highly desirable (Grower: John Leathers).



Figure 4.1233 (above) A particularly dark flower of *Promenaea stapelioides* with pronounced barring (Grower: Ron Parsons).
Figure 4.1234 (below) This form of *Promenaea stapelioides* has more localised pigmentation (Grower: Gerardus Staal).

PROMENAEA***Promenaea xanthina* (Lindl.) Lindl.****Publication:** *Edwards's Bot. Reg.* 29 (Misc.): 13 (1843)**Etymology:** From the Greek *xanthinus* (yellow), referring to the brilliant yellow colour of the flowers of this species.**Homotypic synonyms:** *Maxillaria xanthina* Lindl., *Zygopetalum xanthinum* (Lindl.) Rchb.**Heterotypic synonyms:** *Eulophia crinita* (P.N.Don) G.Don, *Maxillaria lawrencei* Kraenzl., *Promenaea citrina* P.N.Don, *Promenaea xanthina* var. *major* Cogn., *Zygopetalum citrinum* (P.N.Don) G.Nicholson.**Morphology:** *Plant* 8–12 cm tall, clumping to shortly repent, pseudobulbs clustered to 1.5 cm apart along rhizome. *Pseudobulb* to 3 cm tall by 2.5 cm wide, broadly ovoid, slightly tetragonal, 1–2 leafy bracts, bifoliate. *Leaf* to 10 cm long by 1.5 cm wide, oblanceolate, apex acute, lamina sub-erect to spreading, greyish-green in colour. *Inflorescence* a raceme, 5–10 cm in length, ascending to descending, lateral from base of recently matured pseudobulbs. *Flower* 2.5–3.5 cm wide, to 2 in number, simultaneous, underside of column streaked or entirely red, long-lasting, fragrant. Flowers vary in overall shape, intensity of yellow colouration, callus shape, and number and density of red spots on side-lobes, base of mid-lobe and ventral side of column. Spotting can occasionally extend to the base of the petals.**Range, elevation and habitat:** *Promenaea xanthina* occurs in southeastern Brazil in the states of Bahia (southernmost), Minas Gerais, Espírito Santo, São Paulo, Rio de Janeiro, Paraná and Santa Catarina at elevations from 1200–1700 m. This common species is found in cool, shady, damp situations growing as an epiphyte on mossy tree trunks, where it can sometimes form large colonies. It can also grow in brighter situations on the outer branches of trees along mountain ridges. Flowering occurs in the spring and summer in nature.**Culture recommendations:** See general culture notes for the genus.**Comments:** *Promenaea xanthina* and *P. stapelioides* are the two most easily obtained species of this genus, and fortunately so, as both are prized subjects in any collection. The glowing yellow blooms of *P. xanthina* are extremely showy, and a specimen plant in full bloom is a sight to behold. The shape of the flowers and the size and density of red markings are somewhat variable, but invariably pleasing. A thriving *Promenaea* plant will increase exponentially in size, each lead dividing into two or three new growths, forming a compact, clumping specimen in a relatively short period of time. This species flowers in cultivation between very early spring and early autumn.**Figure 4.1235 (above)** *Promenaea xanthina* produces rather handsome flowers of deep yellow (Grower: MarniTurkel).**Figure 4.1236 (above)** A flowering *Promenaea xanthina* growing on a tree in Brazil (Photo: Leonardo Desordi Lobo).



Figure 4.1237 (above) *Promenaea xanthina* produces rather handsome flowers of deep yellow (Grower: Ron Parsons).

Figure 4.1238 (below) The clone *Promenaea xanthina* 'Gold Nuggets' occasionally bears these unusual flowers (Grower: Marni Turkel).

Prosthechea Knowles & Westc.

Publication: Knowles, G. B., & Westcott, F., 1838, *Fl. Cab.* 2: 111

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Prosthechea glauca* Knowles & Westc., 1838, *Fl. Cab.* 2: 111.

Profile: A large and varied genus of approximately 115 epiphytic, lithophytic or terrestrial species. They are found in a wide variety of habitats, from coastal forest to cloud forest, in both moist and seasonally dry situations at elevations from sea level to 2600 m. They are found in southern Florida, on many of the Caribbean islands, and from Mexico south through Central America and tropical South America to Brazil, Paraguay and Bolivia.

Etymology: From the Greek *prostheke* (appendage), referring to the mid-tooth on the dorsal surface of the column of the type species.

Homotypic synonym: *Epithecia* Knowles & Westc., nom. illeg.

Heterotypic synonyms: *Anacheilium* Hoffmanns., *Epicladium* Small, *Hormidium* Lindl. ex Heynh., *Panarica* Withner & P.A.Harding, *Pollardia* Withner & P.A.Harding, *Pseudencyclia* Chiron & V.P.Castro.

General morphology: *Plant* sympodial, clumping to repent, branching, usually erect. *Pseudobulb* oblong, discoid or cylindric, laterally compressed to some degree, subtended by small non-leafy bracts, leaves apical, 1–3 in number. *Leaf* elliptic to ligulate, apex acute, minutely notched, lamina leathery, often glaucous. *Inflorescence* a raceme or few-branched panicle, subsessile or pedunculate, minute floral bracts, usually with a basal sheath, terminal. *Flower* successive or simultaneous, resupinate or non-resupinate, sepals and petals subsimilar, subequal, free, spreading, lip lacking side lobes, joined to lower half of column, column without wings or foot, apex with 3 teeth, pollinia 4, in two equal pairs.



Figure 4.1239 (above) A Mexican endemic, *Prosthechea vitellina* is not a miniature species, but bears perhaps the most vibrant flowers in the entire genus (Grower: John Leathers).

PROSTHECHEA

Prosthechea campos-portoi (Pabst) W.E.Higgins

Publication: *Phytologia* 82: 377 (1997, publ. 1998)

Etymology: Named for Paulo de Campos Portô (1889–1968), a Brazilian botanist and a former director of the Rio de Janeiro Botanic Garden.

Homotypic synonym: *Encyclia campos-portoi* Pabst.

Morphology: Plant to 15 cm tall, clumping to shortly repent. *Pseudobulb* 1–5 cm tall by 0.8–1.5 cm wide, narrowly ovoid to nearly orbicular, slightly compressed laterally, sub-erect to nearly prostrate, glossy, unifoliate. *Leaf* 4–10 cm long by 1.8–2 cm wide, subpetiolate, linear oblong to oblong to slightly ovoid, apex obtuse to rounded, lamina erect to spreading, arcuate, often twisted to side, thinly leathery, flexible. *Inflorescence* a raceme, to 6 cm in length including peduncle, erect, with small subtending bracts. *Flower* 1.8–2.5 cm wide, 2–8 in number, simultaneous, non-resupinate, widely spreading. Flowers vary from orange to greenish, and in the intensity of reddish suffusion on the back of the segments.

Range, elevation and habitat: *Prosthechea campos-portoi* is known only from the state of Espírito Santo, Brazil, where it grows epiphytically in moist, lower montane forest at elevations around 600 m. No confirmed bloom-time records were found. No conservation status could be found, but plants of limited distribution are always of concern.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture due to its random, spreading, rhizomatous growth habit. *Temperature* intermediate. *Light* light shade to medium shade. *Watering* water frequently, but allow to dry between waterings. Reduce frequency of watering in winter to approximately once a week. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly during active growth, reducing or withholding when inactive.

Comments: *Prosthechea campos-portoi* is one of the smallest species of this large and varied genus. It has many desirable features, including attractive foliage, proportionately large inflorescences, long-lasting and striking flowers, as well as being relatively easy to grow. Formerly included in the genus *Anacheilium*, this group of species known for its non-resupinate flowers was subsumed into *Prosthechea* based on recent DNA studies. *Prosthechea campos-portoi*, along with the nearly identical, but bifoliate *P. kautskyi* (Pabst) W.E.Higgins, is unusual in the orangey colouration of its blooms. Both aforementioned species are uncommon in cultivation, but *P. campos-portoi* is somewhat more available. The latter blooms in cultivation between mid-spring and mid-summer.

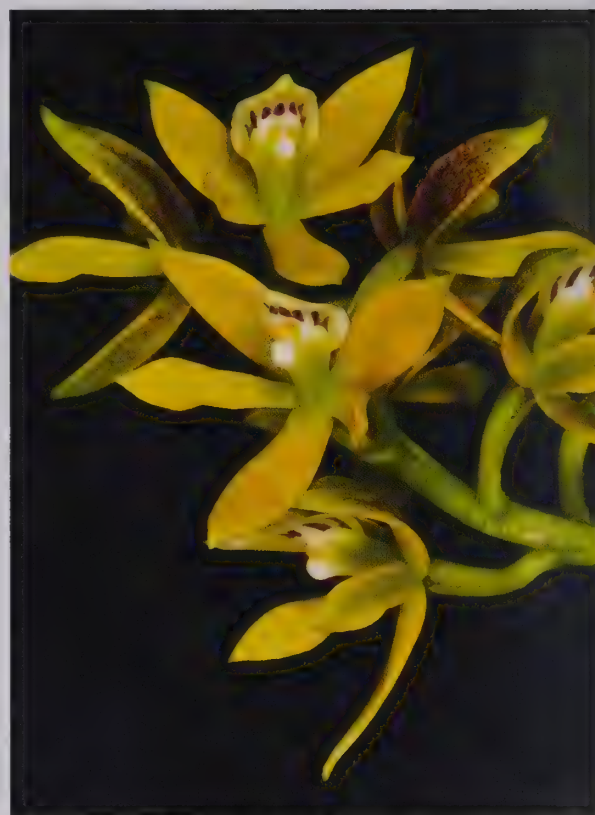


Figure 4.1240 (above) *Prosthechea campos-portoi* produces wonderful, long lasting flowers (Grower: Ron Parsons).

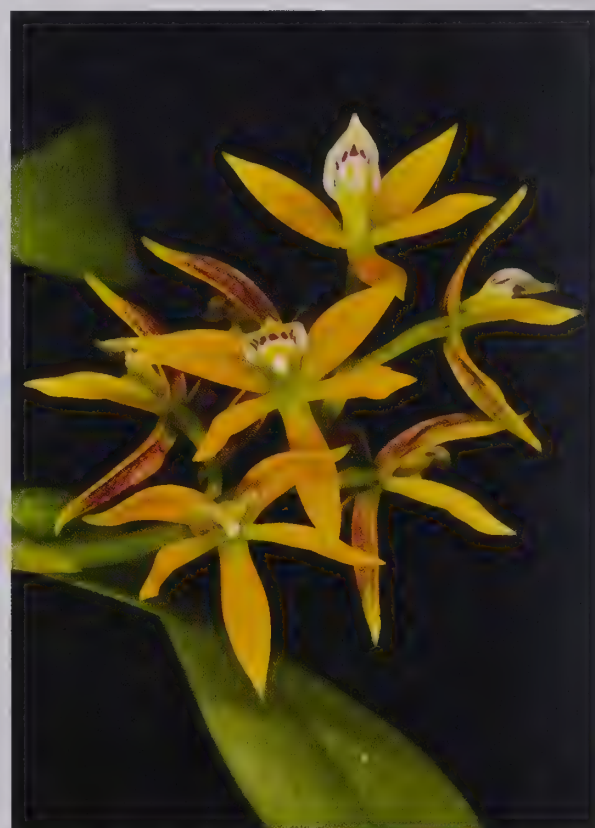


Figure 4.1241 (above) The inflorescence of *Prosthechea campos-portoi* is comparatively large (Grower: Marni Turkel).

PROSTHECHEA

Prosthechea pringlei (Rolfe) W.E.Higgins

Publication: *Phytologia* 82: 380 (1997, publ. 1998)

Etymology: Named in honour of Cyrus Guernsey Pringle (1838–1922), American botanist and collector for the American Museum of Natural History, who catalogued plants of North America, particularly those of Mexico. He is credited with having discovered approximately 1200 new species, 100 new varieties and 29 new genera. Pringle collected the type of this species in Morelos, Mexico, at 2438 m (8000 ft) elevation.

Homotypic synonyms: *Encyclia pringlei* (Rolfe) Schltr., *Epidendrum pringlei* Rolfe, *Pollardia pringlei* (Rolfe) Withner & P.A. Harding, *Pseudencyclia pringlei* (Rolfe) V.P. Castro & Chiron.

Morphology: *Plant* 6–14 cm tall, clumping, erect. *Pseudobulb* 1.5–3.5 cm tall by 0.4–1.2 cm wide, ovoid to pyriform-ovoid, leaves 1–2 in number. *Leaf* 4.5–9.5 cm long by 0.4–0.75 cm wide, conduplicate at base, narrowly elliptic to ligulate, apex acute to narrowly obtuse, sub-erect, thinly leathery, somewhat flexible. *Inflorescence* a raceme, 7–16 cm in length, erect to descending, slender, terminal. *Flower* 1.5–2.5 cm tall, 1–4 in number, simultaneous, resupinate, widely spreading, lip proportionately large.

Range, elevation and habitat: A Mexican endemic, *Prosthechea pringlei* is found in the states of Guerrero, México, Michoacán, Morelos and Oaxaca, where it grows in seasonally wet, humid, montane pine and oak forest at elevations of 1700–2500 m. Winters are relatively dry and cool. It also grows epiphytically on trees in lava fields near Cuernavaca, and can be locally common in parts of its overall range. Flowering occurs from March to early May, at the end of the dry season. The authors found this species in bloom in the state of México, growing with *Rhyncho스테le cervantesii* (Lex.) Soto Arenas & Salazar at the end of the dry season in late April. Conservation status unknown.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood or rough wood shingles, using little or no New Zealand *Sphagnum* moss around the roots, depending on humidity. This species is not well-suited to potted culture due to the mounding habit of the pseudobulbs and its requirement for good air circulation around the roots. *Temperature* intermediate to cool. *Light* light shade. *Watering* water frequently from mid-spring to mid-autumn, ensuring excellent drainage. Reduce frequency as pseudobulbs mature in the autumn. Keep much drier during winter dormancy, misting the roots every 7–10 days. *Humidity* high during growing season, average during dormancy. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly during active growth, reducing or withholding when inactive. This species is considered difficult to grow.



Figure 4.1242 (above) *Prosthechea pringlei* flowers have a broad, spade-like lip (Grower: Musia Stagg).



Figure 4.1243 (above) *Prosthechea pringlei* growing in situ, Edo, Mexico (Photo: Ron Parsons).

PROSTHECHEA

Comments: *Prosthechea pringlei* has an extremely attractive flower with a proportionately large, spade-shaped lip with raised veins and faint spots, contrasting partially with the entirely dark reddish column, narrow petals and gracefully recurved sepals. It is uncommon in cultivation and considered difficult to cultivate, even by advanced growers. This species should be propagated by seed whenever possible, as it is likely that some seed-raised plants may be easier to grow. It blooms in cultivation at the same time as in nature, generally mid-spring to early summer.



Figure 4.1244 (above) A *Prosthechea pringlei* flower in detail, an unopened bud is apparent to the rear (Grower: MarniTurkel).

Psychopsis Raf.

Publication: Rafinesque, C. S., 1838, *Fl. Tellur.* 4: 40

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Etymology: From the Greek *psyche* (butterfly) and *opsis* (resembling), referring to the butterfly-like flowers.

Type species: *Psychopsis papilio* (Lindl.) H.G.Jones, 1975, *J. Barbados Mus. Hist. Soc.* 35: 32.

Heterotypic synonyms: *Papiliopsis* E.Morren, *Papiliopsis* E.Morren ex Cogn. & Marchal, *Psychopsiella* Lückel & Braem.

Profile: A small genus of 5 epiphytic species, distributed across Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Venezuela, Suriname, French Guiana, Brazil and Trinidad.

General morphology: *Plant* sympodial, clumping, erect, firmly attached to the substrate in one species. *Pseudobulb* sub-orbicular, strongly compressed, rugose with age, leaf apical, unifoliate, eventually deciduous. *Leaf* bifacial, basally conduplicate, lamina red, mottled or spotted, leathery, semi-rigid. *Inflorescence* a raceme, in some species distally flattened, much longer than leaves, lateral from base of pseudobulb. *Flower* 1, rarely 2, simultaneously, often successive over several seasons (except *P. limminghei*), resupinate, spurless, sepals and petals dissimilar, free, segments yellow with red to red-brown spots, labellum trilobed, lateral lobes smaller than apical lobe, callus complex, tuberculate, often covered with oil, column straight with two pairs of fleshy arms or wings, pollinia 2, ovary glabrous.

Comments: The four species long known as *Psychopsis* (*P. krameriana* (Rchb.f.) H.G.Jones, *P. papilio* (Lindl.) H.G.Jones, *P. sanderae* (Rolfe) Lückel & Braem and *P. versteegiana* (Pulle) Lückel & Braem) are large, erect plants with disproportionately tall, long-lived, re-blooming inflorescences, whereas *P. limminghei* is a tiny plant with flattened pseudobulbs, leaves adpressed to the substrate, and a successively flowering albeit annual inflorescence. As such, the genus *Psychopsis* consists of a morphologically disparate assemblage of species. The authors, in common with other authorities, firmly believe that *P. limminghei* should remain in the monotypic genus *Psychopsiella*.



Figure 4.1245 (above) The *Psychopsis limminghei* flower is handsomely patterned (Grower: Mary Gerritsen).

PSYCHOPSIS***Psychopsis limminghei*** (E.Morren ex Lindl.) M.W.Chase**Publication:** *Bot. Mag.* 22: 54 (2005)**Etymology:** Named for the distinguished Belgian orchidologist, Count Alfred de Limminghe (1834–1861).**Homotypic synonyms:** *Oncidium limminghei* E.Morren ex Lindl., *Psychopsiella limminghei* (E.Morren ex Lindl.) Lückel & Braem.**Heterotypic synonym:** *Oncidium echinophorum* Barb.Rodr.**Morphology:** *Plant* to 5.5 cm tall (individual growth), slowly repent, growths spaced 1–2 cm apart along ascending rhizome, mat-forming, adpressed to substrate. *Pseudobulb* 1.5–2.5 cm long by 1.5 cm wide, flattened, elliptic-sub-orbicular, cordate, lightly rugose, subtended by sheaths when young. *Leaf* 2.5–3.5 cm long by 3 cm wide, without petiole, unequally bilobed at base, oval to elliptic, apex obtuse to rounded, prostrate, finely rugose, spotted red. *Inflorescence* a raceme, to 10 cm in length, elongating slightly between flowers, erect to sub-erect, slender, lateral. *Flower* 2.8–4 cm tall, proportionately large, 2–5 in number, singly successive, widely spreading, dorsal sepal small, hooded, petals sometimes slightly reflexed. Flowers vary in terms of segment posture, in particular the petals, which may be outstretched or recurved, with slight variations in the intensity of colour and pattern, and the number of spots on the lip. The margins of the segments may be entire or undulate.**Range, elevation and habitat:** *Psychopsis limminghei* is a Brazilian endemic, found only in the state of Rio de Janeiro at elevations ranging from near sea level to 300 m. Curiously, the type specimen was originally said to have been found near Caracas, Venezuela, but this was later found to be an error. It grows as an epiphyte on small branches and tree trunks in low montane, evergreen coastal forest, as well as in *restinga*, a habitat of semi-stabilised vegetation on white sand dunes within meters of marine beaches (R. Braga, pers. comms., 2012). Flowering occurs intermittently throughout the year in nature, but particularly between May and September. No conservation status information could be found.**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or Brazilian tree fern (Xaxim), with little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to its flattened, climbing, mat-forming habit. *Temperature* warm to intermediate. *Light* medium shade. *Watering* water frequently, but allow to dry completely between waterings; do not keep wet. Reduce frequency of waterings during winter to once or twice per week. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing in winter.**Comments:** One of the most exciting of all miniature orchids, *Psychopsis limminghei* has an unusual and arresting plant habit. The**Figure 4.1246 (above)** *Psychopsis limminghei* flowers are larger than the plants that produce them (Grower: Howard Gunn).**Figure 4.1247 (above)** *Psychopsis limminghei* leaves and pseudobulbs hug their mount closely (Grower: Howard Gunn).

PSYCHOPSIS

pseudobulbs and leaves are flattened and tightly hug the mount they grow on. Striking even when not in bloom, the leaves exhibit beautiful red markings that are similar to the juvenile foliage of its larger relatives. The stunning, eye-catching flowers are actually larger than the plants that produce them! This species can be difficult to grow for some; plants should be grown on mounts without moss, but watered frequently, allowing the plants to dry in between waterings. Not uncommon in cultivation, *Psychopsis limminghei* tends to bloom between mid-spring and early autumn.



Figure 4.1248 (above) *Psychopsis versteegiana* has flowers typical of most of the genus. With the exception of *Psychopsis limminghei*, none of the remaining species are miniature in size (Grower: White Oak Orchids).

***Pteroceras* Hasselt ex Hassk.**

Publication: Hasskarl, J. C., 1842, *Flora* 25 (2 Beibl.): 6

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridiinae

Type species: *Pteroceras teres* (Blume) Holttum, 1960, *Kew Bull.* 14: 271.

Etymology: From the Greek *ptero* (winged) and *ceras* (horned), referring to the appendages at the base of the lip.

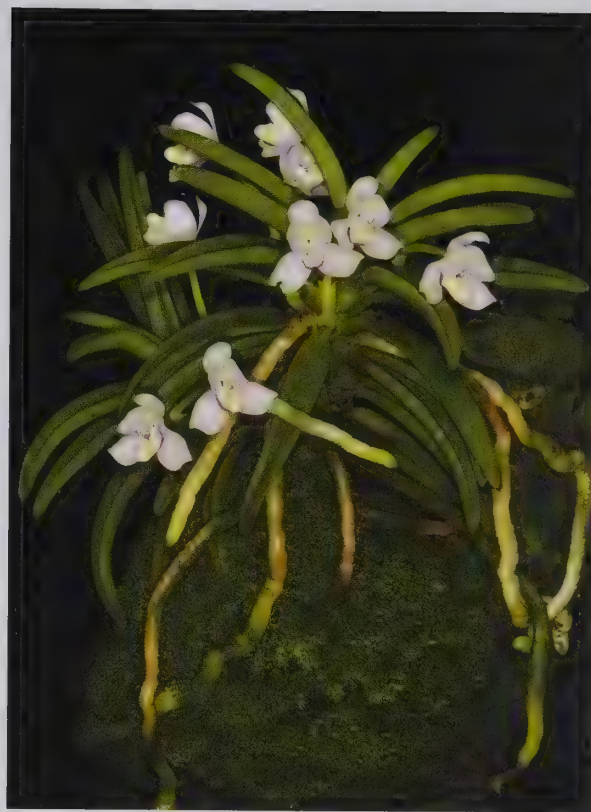
Heterotypic synonyms: *Ornitharium* Lindl. & Paxton, *Proteroceras* J. Joseph & Vajr., *Proterteroceras* J. Joseph & Vajr.

Profile: A relatively small genus of nearly 20 epiphytic species, that occur in India, China, Thailand, Vietnam, Malaysia, Indonesia and the Philippines.

General morphology: *Plant* monopodial, stem usually short, leaves few to several, two-ranked, bases imbricating. *Leaf* flat, lorate, apex usually unequally bilobed, lamina leathery, fleshy. *Inflorescence* a raceme, sometimes several simultaneous inflorescences, some elongating over time with successive flushes of flowers, lateral, axillary. *Flowers* few to many, usually short-lived, usually resupinate, sepals and petals subsimilar, free, spreading, lateral sepals often broader than petals, lip fleshy, trilobed, with large side-lobes, spurred, column short, stout, wingless, with long foot, pollinia 2.



Figure 4.1249 (above) *Pteroceras semiteretifolium* blooms seen against the foil of its fleshy leaves (Grower: White Oak Orchids).

PTEROCERAS***Pteroceras semiteretifolium*** H.A.Pedersen**Publication:** *Nordic J. Bot.* 12: 387 (1992)**Etymology:** From the Latin *semi* (half), *terete* (round in cross-section) and *folium* (leaf), in reference to the shape of the thickened leaves.**Homotypic synonym:** *Pteroceras uniflorum* Tixier, *Sarcophilus uniflorus* Gagnep.**Morphology:** *Plant* 5–10 cm wide, stem to 5 cm tall, occasionally branching from base, several to many leaves, two-ranked, closely spaced, roots proportionately large, thick, long. *Leaf* to 5 cm long by 0.8 cm wide, narrowly lanceolate, attenuate towards apex, apex acute with rounded tip, lamina straight to slightly arcuate, thick, fleshy, dorsally shallowly sulcate. *Inflorescence* a raceme, very short, several simultaneous, single-flowered inflorescences. *Flower* 2–2.5 cm tall, single, resupinate, widely spreading, lip pouch-like. Flower varies noticeably in shape and degree of spreading, with slight differences in lip markings and colouration.**Range, elevation and habitat:** *Pteroceras semiteretifolium* occurs in southern Vietnam at elevations of 1000–1500 m, where it grows as a twig epiphyte in low montane evergreen forest. An uncommon species, it is usually found growing as a single plant, often on large branches of tall (20–25 m) trees, occasionally on *Michelia* (Magnoliaceae), and sometimes in the company of *Panisea albiflora*. *Pteroceras semiteretifolium* blooms in April (Leonid Averyanov, pers. comms., 2012).**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, with New Zealand *Sphagnum* moss around the roots. The authors have not seen this species grown in pots, but that may be possible in an open mix. *Temperature* intermediate. *Light* light shade to medium shade. *Watering* allow to dry out briefly between waterings. This species requires less frequent waterings during winter, but humidity should be high; mist frequently. *Humidity* high. *Air movement* good to brisk. *Propagation* seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly, reducing to 1/4 strength every 2–3 weeks during winter.**Comments:** *Pteroceras semiteretifolium* is an unusual member of the genus; the plant is quite different from its congeners, and the flowers are longer-lived than most of its relatives. The plant is very handsome, with numerous, stacked, succulent leaves, each with a channel on the dorsal surface. The white, crystalline flowers have an intricate, pouch-like lip marked with a variable pattern of pink striping on the inner surface, and a band of yellow on the outer surface. Another attraction lies in the subtle yet beautiful fragrance. It may bloom with sporadic single flowers at any time, but tends to bloom most heavily in the autumn in cultivation.**Figure 4.1250 (above)** A fine, mounted *Pteroceras semiteretifolium* plant in bloom (Grower: Ron Parsons).**Figure 4.1251 (above)** *Pteroceras semiteretifolium* has pretty, long-lived blooms (Grower: White Oak Orchids).

Restrepia Kunth

Publication: Kunth, C. S., 1816, *Nov. Gen. Sp.* 1: 366

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Restrepia antennifera* Kunth in F. W. H. von Humboldt, A. J. A. Bonpland & C. S. Kunth, 1816, *Nov. Gen. Sp.* 1: 367.

Etymology: Named for José Manuel Restrepo Veléz (1781–1863), former governor of the Department of Antioquia, Colombia, who was interested in the geography, fauna and flora, but particularly the orchids, of his home state.

Profile: A large genus of approximately 50 taxonomically confused species found growing as epiphytes in lowland tropical rainforest, montane forest, cloud forest and páramo, at elevations of 350–3500 m. They range from southern Mexico through Central America and south to Bolivia and Venezuela. The centre of diversity for this genus lies in Colombia and Ecuador.

General morphology: *Plant* small to medium sized, clumping, freely branching, erect. *Ramicaul* erect, enclosed in papery, often spotted or striped, imbricating, compressed, distichous sheaths. *Leaf* generally ovate, rigid, leathery, often suffused with red or purple. *Inflorescence* a single flowered raceme, peduncle terete, elongate or abbreviate, filiform, a succession of single-flowered racemes, sometimes 2–3 simultaneous, borne terminally from fascicle ventrally at apex of ramicaul. *Flower* singly successive, many in number, resupinate, dorsal sepal free, membranous, erect, narrow, apex clavate, bearing small osmophore, lateral sepals connate for most of their length forming a synsepal, petals filiform, membranous, elongate, apex clavate, bearing small osmophores, base margin sometimes dentate, lip entire or trilobed, with concave hypochile flanked by pair of hairlike appendages, fixed to base of pedestal-like column foot by a rigid rod, pollinia 4, flowers relatively short-lived.

General culture notes: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species may also be grown potted in moss or a fine bark mix. Some of the larger species may dislodge from the mounts as plants become larger and heavier. *Temperature* dependent upon species. *Light* light shade to medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division, cuttings, seed, and sometimes by adventitious plantlets (keiki) originating at base of leaf. Plants may be propagated by leaf cuttings using leaves that have previously bloomed; these should be buried up to the base, from where previous flowers emerged, in moss or a fine bark mix and kept moist. A plantlet should begin to form within a few months. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Restrepia*, are prone to infection with bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1252 (above) *Restrepia howei* has one of the smallest flowers in the genus (Grower: Malli Rao).

RESTREPIA

Restrepia condorensis Luer & R. Escobar

Publication: *Orquideologia* 20: 128 (1996)

Etymology: Named for the Cordillera del Condor, Ecuador, where this species was discovered, and to which it is endemic.

Morphology: *Plant* 9–11.5 cm tall. *Ramicaul* 6–7.5 cm. *Leaf* 3–4 cm long by 2–3 cm wide, petiole minute, apex sub-acute to obtuse, lamina ovate, erect, ventrally suffused with purple. *Inflorescence* a raceme, peduncle 5–6 cm in length. *Flower* to 4 cm tall, widely spreading, synsepal pointed, petals entire, lip narrow, pandurate, epichile fimbriate.

Range, elevation and habitat: *Restrepia condorensis* is endemic to the Cordillera del Condor in the province of Zamora-Chinchipe, southern Ecuador, at elevations of 1800–2000 m. It grows as an epiphyte in cool, moist, montane and cloud forest. No bloom-time records could be found, but it is probable that *R. condorensis* flowers at any time of year. It is listed as endangered in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.

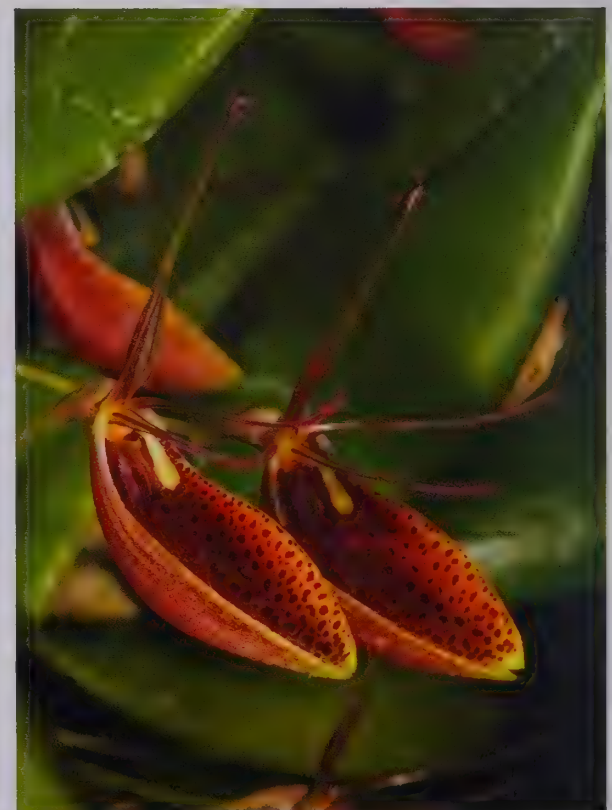
Comments: Although scarce in collections, *Restrepia condorensis* is well worth acquiring. The flowers are brilliantly coloured, more so than those of many in the genus, and the plant is of a perfect size. One complaint often voiced by collectors of *Restrepia* is that the taller species become bushy and lanky, spreading and taking up too much room. This species is most similar to *R. teaguei* Luer, but the latter species has a pointed synsepal, petals that are sparsely denticulate, a microscopically verrucose lip and foliage with a bluish tinge. *Restrepia condorensis* can bloom at any time in cultivation, although there tends to be a peak bloom between mid-autumn and early spring.



Figure 4.1253 (above) *Restrepia condorensis* has a brilliantly coloured flower of great beauty (Grower: MarniTurkel).



Figure 4.1254 (above) The prettily speckled bloom of *Restrepia condorensis* in profile (Grower: Howard Gunn).

RESTREPIA***Restrepia cymbula* Luer & R. Escobar****Publication:** *Orquideologia* 20: 133 (1996)**Etymology:** From the Latin *cymbi* (boat-shaped) and the diminutive suffix *-ula*, in reference to the little boat-like synsepal.**Morphology:** *Plant* 4.5–8 cm tall. *Ramicaul* 2.5–5 cm. *Leaf* 2–5 cm long by 1.5–2.5 cm wide, sessile, ovate, apex obtuse, lamina erect to sub-erect, suffused with purple ventrally. *Inflorescence* a raceme, peduncle 2–4.5 cm in length. *Flower* 1–1.5 cm long, synsepal concave, red-spotted, lip oblong-pandurate, lightly verrucose, conspicuously incised at apex, pedicel tiny.**Range, elevation and habitat:** *Restrepia cymbula* was originally collected without locality from Ecuador, but it has been found more recently in the province of Loja, at 1800 m elevation. It grows as an epiphyte in primary, moist montane forest under shady conditions (José Portilla, pers.comms.). Bloom-time data could not be found, but it is probable that this species can flower at any time. This narrow endemic is listed as data deficient on the IUCN Red List.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** Another uncommon plant in cultivation, *Restrepia cymbula* is slowly becoming more readily available. In 1996, the only plant known in cultivation was lost, but fortunately more plants were discovered thereafter in the wild. The flowers are readily identifiable by their characteristic scoop or boat-like appearance. Although there are other *Restrepia* with a similarly shaped synsepal, this species is distinguished by its small size and by the spotted, reddish-orange synsepal. *Restrepia nittiorhyncha* (Lindl.) Garay (formerly known as *R. schlimii* Rchb.f.) has similar, slightly smaller, flowers, but they are yellow with dark stripes and the overall plant size is larger. Another similar species is *R. mohrii* Braem. This species has orangey flowers and is readily distinguished by the lip, which is sigmoid in profile and tubular, with rolled back margins. *Restrepia cymbula* can flower at any time in cultivation, but most flowers are seen between late winter and mid-summer.**Figure 4.1255 (above)** *Restrepia cymbula* has a spotted, scoop-like synsepal (Grower: Hanging Gardens).**Figure 4.1256 (above)** A pair of *Restrepia cymbula* flowers (Grower: Steve Beckendorf).**Figure 4.1257 (facing page)** The flower of *Restrepia nittiorhyncha* is similar, but striped (Grower: Hanging Gardens).



RESTREPIA***Restrepia dodsonii* Luer****Publication:** *Phytologia* 46: 382 (1980)

Etymology: Named in honour of Calaway Dodson (1928-), American botanist and orchidologist best known for his studies of Ecuadorian orchids and general orchid pollination. He discovered this species.

Morphology: *Plant* 3.5–9 cm tall. *Ramicaul* 1.5–6 cm. *Leaf* 2–4 cm long by 1–2.5 cm wide, petiole abbreviate, lamina ovate, erect, apex acute to sub-acute, often suffused purplish ventrally. *Inflorescence* a raceme, peduncle 2–4 cm in length. *Flower* 2.5–3 cm tall, spreading widely, synsepal spotted, spots usually arranged in close rows, lip narrowly oblong-subpandurate with narrow blade, spiculate-verrucose.

Range, elevation and habitat: *Restrepia dodsonii* is an epiphytic species that occurs in the provinces of El Oro, Zamora-Chinipe (Jose Portilla, pers. comms., 2011) and Pichincha, Ecuador, at elevations of 1200–1800 m. It is found in moist montane forest, but has also been found growing epiphytically on wood lying on the forest floor, on fallen trees, and even on the branches of cultivated citrus trees. Bloom-time records could not be found, but it is likely to bloom in any month in nature, as it does in cultivation. This species is listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2011*. *Restrepia dodsonii* is locally abundant in some areas, but has become rare in others.

Culture recommendations: See general culture notes for the genus. *Temperature* warm to intermediate.

Comments: A species that is relatively common in cultivation, *Restrepia dodsonii* is the perfect first selection for growers new to the genus. It actually favours warm to intermediate conditions, and the authors have seen it flourishing near to sea level in Hawaiian nurseries. Although the blooms are short-lived, lasting only a few days, plants may flower at any time in cultivation. There is a beautiful xanthic form of this species that has been propagated and distributed by one of the Hawaiian orchid nurseries, and this is well worth acquiring. The two forms are so different that it is not unreasonable to acquire both.



Figure 4.1258 (above) *Restrepia dodsonii* is a fine, readily grown species (Grower: Ron Parsons).



Figure 4.1259 (above) The lovely, xanthic form of *Restrepia dodsonii* is well worth acquiring (Grower: Hanging Gardens).

RESTREPIA

Restrepia iris Luer

Publication: *Phytologia* 46: 383 (1980)

Etymology: From the Latin *iris* (rainbow), referring to the bright colours of the flowers.

Heterotypic synonym: *Restrepia pulchella* H.Mohr.

Morphology: *Plant* 6–9 cm tall. *Ramicaul* 3–6 cm tall. *Leaf* 3–4 cm long by 1.8–2.5 cm wide, minutely petiolate, ovate, apex sub-acute, lamina erect. *Inflorescence* a raceme, peduncle to 3.5 cm in length. *Flower* 2.5–3 cm tall, spreading, lip oblong but slightly constricted in middle, apex somewhat truncate, slightly notched, pedicel to 0.4 cm in length. Flowers are variable in colour from yellow with fine red lines to nearly solid red.

Range, elevation and habitat: *Restrepia iris* has been found in the province of Zamora-Chinchipe, Ecuador, where it grows as an epiphyte in cloud forest, often on trees over streams at elevations of 1400–2500 m. Bloom-time records could not be found, but it is likely to bloom in any month, as in cultivation. This species is listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to cool.

Comments: A favourite of many collectors of this genus, *Restrepia iris* is truly beautiful. The brilliantly coloured, symmetrically striped flowers come in varying degrees of bright yellow and red, and all forms are desirable. This readily available species blooms in cultivation at any time of year. *Restrepia iris* is always eye catching, and has piqued the interest of many an orchid enthusiast.



Figure 4.1260 (above) *Restrepia iris* has wonderful, bicoloured flowers (Grower: John Leathers).



Figure 4.1261 (above) All forms of *Restrepia iris* are attractive and desirable (Grower: Ron Parsons).

RESTREPIA

Restrepia jesupiana Luer

Publication: *Orquideologia* 20: 146 (1996)

Etymology: Named after Ann Lauer Jesup, of Bristol, Connecticut, who cultivated this species.

Morphology: *Plant* 8–14 cm tall. *Ramicaul* 3–9 cm long, sheaths unmarked. *Leaf* 5–6.5 cm long by 1.5–3 cm wide, shortly petiolate, elliptical-oblong to ovate, apex acute to sub-acute, lamina erect. *Inflorescence* a raceme, sometimes 2–3 simultaneous, peduncle 3–5 cm in length. Flower 4.5–5 cm tall, widely spreading, lip subquadrate, slightly constricted towards middle, apex almost truncate, but slightly notched, pedicels to 0.4 cm long.

Range, elevation and habitat: *Restrepia jesupiana* is thought to be endemic to the region around the city of Mérida, in the state of Mérida, Venezuela, where it is not uncommon. It grows epiphytically in cloud forest and páramo at elevations from 2100–2800 m. Bloom-time records could not be found for this species, but it is likely to bloom at any time. No information on conservation status was found.

Culture recommendations: See general culture notes for the genus. *Temperature* cool.

Comments: Lovely by any standards, *Restrepia jesupiana* is one of the few yellow-flowered species in the genus with reduced markings. Both *R. mendozae* Luer and the yellow form of *R. flosculata* Luer have similar flowers, but they are borne upon very short pedicels, giving the illusion that the flowers are resting on the surface of the leaves. Additionally, both species form somewhat larger plants. *Restrepia jesupiana* frequently has two, sometimes three, simultaneous flowers per leaf, held on longer pedicels than in the aforementioned species, extending outwards beyond the foliage. Uncommon in cultivation, *R. jesupiana* tends to bloom between early autumn and mid-winter.



Figure 4.1262 (above) A trio of bright yellow *Restrepia jesupiana* flowers (Grower: John Leathers).

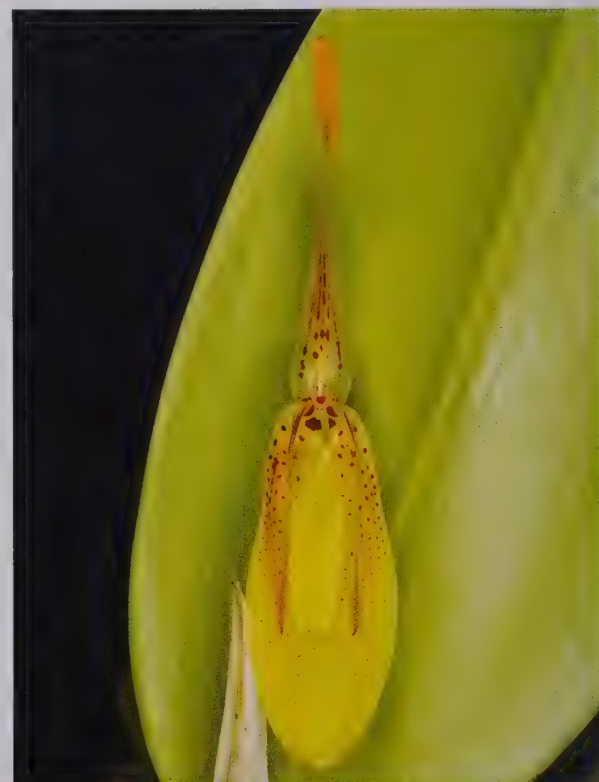
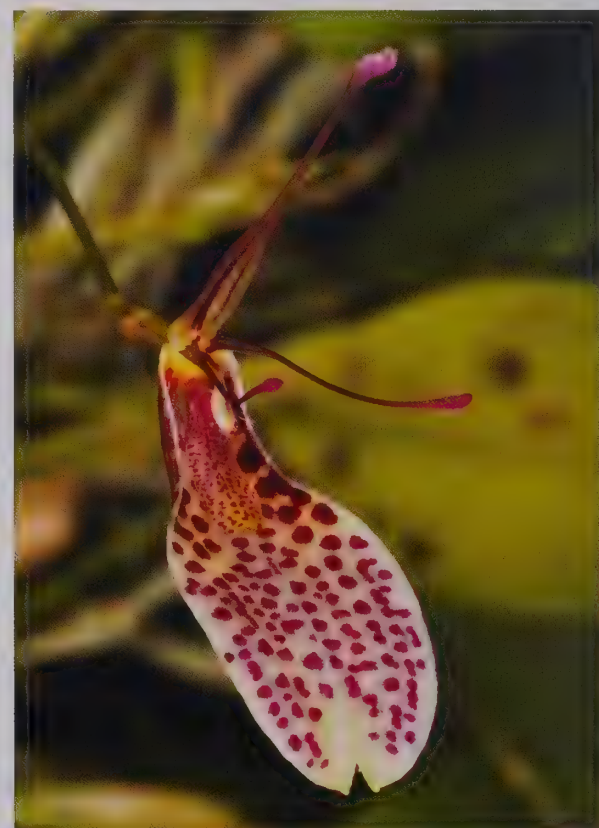


Figure 4.1263 (above) The similar *Restrepia mendozae* bloom is borne on shorter pedicels (Grower: Mary Gerritsen).

Figure 4.1264 (facing page) *Restrepia flosculata* is also yellow flowered and short of pedicel (Grower: Ron Parsons).



RESTREPIA***Restrepia lansbergii*** Rchb.f. & H. Wager**Publication:** *Bonplandia* (Hannover) 2: 23 (1854)**Etymology:** Named for Reinhart van Lansbergen, a Dutch traveller who collected orchids in the vicinity of Caracas, Venezuela, in the 19th century.**Morphology:** *Plant* 5.5–12.5 cm tall. *Ramicaul* 2.5–8 cm long, sheaths spotted purplish. *Leaf* 3–4.5 cm long by 1.5–2.5 cm wide, shortly petiolate, ovate, apex acute to obtuse, lamina erect, often suffused with purple ventrally. *Inflorescence* a raceme, peduncle 3–6 cm in length. *Flower* 2.5–3 cm tall, spreading, synsepal base constricted conspicuously, synsepal varying from spotted to striped, lip sub-rectangular, epichile minutely verrucose and serrate, apex truncate-retuse, pedicel to 0.3 cm long. Flower background colour varies from cream to yellow.**Range, elevation and habitat:** *Restrepia lansbergii* is widespread, but occurs at a few disjunct localities; northwest Venezuela (states of Distrito Federal, Aragua, Lara and Trujillo), central Ecuador (provinces of Pastaza and Tungurahua) and north-central Peru (department of Huánuco) at elevations of 700–1500 m. It grows epiphytically in moist, montane forest. Bloom-time records could not be found for this species, but it is likely to flower at any time. No conservation status information could be found.**Culture recommendations:** See general culture notes for the genus. *Temperature* warm-intermediate to intermediate. This species dislikes cool temperatures.**Comments:** An attractive and graceful species, *Restrepia lansbergii* is also an excellent selection for those with warm to intermediate conditions. Although it will survive cooler conditions, the plants tend to suffer and rarely bloom. The usually cream-coloured flowers are overlaid with bright red spots, although there are forms with striped synsepals. This species is uncommon in cultivation, but not unobtainable, and tends to flower between early autumn and late winter in cultivation.**Figure 4.1265 (above)** The cream coloured *Restrepia lansbergii* flower is overlaid with pretty spots (Grower: Andy's Orchids).**Figure 4.1266 (above)** A *Restrepia lansbergii* clone with larger spots (Grower: J & L Orchids).**Figure 4.1267 (facing page)** A yellowish *Restrepia lansbergii* clone (Grower: Ron Parsons).



RESTREPIA

Restrepia purpurea Luer & R.Escobar

Publication: *Orquideologia* 20: 162 (1996)

Etymology: From the Latin *purpurea* (purple), referring to the purple coloured synsepal.

Morphology: *Plant* 7.5–14 cm tall. *Ramicaul* 3.5–9 cm tall, sheaths spotted with purple. *Leaf* 4–5.5 cm long by 3–3.5 cm wide, shortly petiolate, ovate, apex obtuse, lamina erect, purple coloured. *Inflorescence* a raceme, peduncle 3–4 cm in length, shorter than leaf. *Flower* 3.5–4 cm tall, widely spreading, lip oblong, slightly constricted above middle, margins denticulate/fimbriate, apex retuse, pedicel minute.

Range, elevation and habitat: *Restrepia purpurea* has only been found in a small area of southwestern Colombia in the department of Nariño, municipality of Sotomayor. It grows epiphytically in montane cloud forest at elevations near 1650 m. It has only been found twice in this unprotected and vulnerable area. Bloom-time records could not be found, but as with most species of *Restrepia*, it can flower frequently and at any time. This species is listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate to intermediate-cool

Comments: Uncommon in cultivation, *Restrepia purpurea* deserves to be more widely grown. The beautifully coloured synsepal – the showiest part of the *Restrepia* bloom – is longitudinally striped, with rich purple-pink and white markings and an attractive white margin. It is possible that this species is more common in cultivation than believed, as *Restrepia* are notorious for being misidentified. Flowering in cultivation usually occurs between mid-summer and mid-autumn, but it can occasionally bloom at other times.



Figure 4.1268 (above) The flower of *Restrepia purpurea* is richly coloured purple-pink and white (Grower: Mary Gerritsen).



Figure 4.1269 (above) The boldly striped *Restrepia purpurea* bloom is as striking as it is charming (Grower: Hanging Gardens).

RESTREPIA***Restrepia roseola*** Luer & R.Escobar**Publication:** *Orquideologia* 20: 170 (1996)**Etymology:** From the Latin *roseolus* (pink, pale rose), referring to the colour of the synsepal.**Morphology:** *Plant* 6.5–12 cm tall. *Ramicaul* 3–7.5 cm tall. *Leaf* 3.5–4.5 cm long by 2–2.5 cm wide, petiole twisted, to 0.4 cm in length, apex sub-acute to obtuse, lamina ovate, erect, suffused with purple. *Inflorescence* a raceme, peduncle 3.5–4 cm in length. *Flower* 3–3.5 cm tall, single, synsepal broad, but basally constricted, lip oblong, epichile elliptic-oblong, convex with margins decurved and microscopically erose, slightly constricted below middle, apex retuse, pedicel minute.**Range, elevation and habitat:** The type specimen for *Restrepia roseola* lacks collection data, but it is thought to have originated from the coastal mountains of northwestern Venezuela. Another plant collected by G. K. C. Dunsterville in the state of Aragua, Venezuela, was found growing epiphytically in a moist montane forest remnant north of Tiara, at an elevation of 1300 m. *Restrepia elegans* H.Karst is also found in the same area. *Restrepia roseola* is listed on the 2001 IUCN Red List as Critically Endangered, and as “data deficient” in the *Libro Rojo de Plantas de Colombia* vol. 6.**Culture recommendations:** See general culture notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** The appealing *Restrepia roseola* is one of the many commonly misidentified species in the genus. It can be recognised by the soft, relatively broad, rosy-pink synsepal, as well as by the lip, with its rolled-back, roughened margins. This species is quite uncommon in cultivation, but it is easy to propagate through division or leaf cuttings. Although it may flower at any time of year, it tends to bloom between mid-spring and autumn in cultivation.**Figure 4.1270 (above)** *Restrepia roseola* is commonly misidentified (Grower: Marni Turkel).**Figure 4.1271 (above)** The *Restrepia roseola* synsepal is of a soft, rosy-pink and relatively broad (Grower: Marni Turkel).

RESTREPIA

Restrepia seketii Luer & R.Escobar

Publication: *Orquideologia* 20: 165 (1996)

Etymology: Named for Robert Seket of Medellín, Colombia, who first collected this species.

Morphology: *Plant* 10–14 cm tall. *Ramicaul* 6–8 cm tall, sheaths spotted purple. *Leaf* 4–5.5 cm long by 2.5–3.7 cm wide, petiole abbreviate, apex sub-acute, lamina ovate, erect, often suffused with purple ventrally. *Inflorescence* a raceme, peduncle 4–5 cm in length. *Flower* 3.5–4 cm tall, spreading widely, synsepal obovate, sigmoid in profile, margins erect to involute near or below middle, petal margin smooth, lip oblong, apex bifid, pedicel 0.5 cm.

Range, elevation and habitat: *Restrepia seketii* is an endemic epiphyte of montane cloud forest in the Sierra Nevada de Santa Marta, department of Magdalena, Colombia. It is only known from the original collection by Robert Seket, made in 1980, but no elevational or bloom-time information is known. It is likely to bloom at any time. This rare species is considered vulnerable in the *Libro Rojo Pl. Colombia*.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate-cool to cool.

Comments: Collected only once in 1980, this species remains uncommon to rare in cultivation, although it has been spread through divisions and leaf cuttings. If acquired, please consider propagating and dispersing this species to others. The lovely flowers are similar in some ways to those of *R. lansbergii*, but *R. seketii* differs in that the synsepal is sigmoid in profile, with margins that are erect or turned slightly inwards near or below the middle. This is a wonderful species for any collector of the genus. *Restrepia seketii* tends to bloom between mid-autumn and early spring in cultivation, but random flowers may occur at other times.



Figure 4.1272 (above) The lovely *Restrepia seketii* has only been collected on one occasion (Grower: Hanging Gardens).



Figure 4.1273 (above) The *Restrepia seketii* synsepal segues to wholly white towards its apex (Grower: Hanging Gardens).

RESTREPIA

Restrepia teaguei Luer

Publication: *Phytologia* 46: 384 (1980)

Etymology: Named for Walter Teague (1926–2013) of San Francisco, California, who was born in Ecuador. He discovered this and many other species of orchids. Teague has many species named in his honour, including the pleurothallid genus *Teagueia*.

Morphology: *Plant* 7–13.5 cm tall. *Ramicaul* 4–8 cm tall, sheaths spotted. *Leaf* 3–5.5 cm long by 2–3.5 cm wide, petiole twisted, apex sub-acute to obtuse, lamina ovate, erect, dorsal blue-green, ventrally purplish. *Inflorescence* a raceme, peduncle 3–4.5 cm in length, occasionally two simultaneous racemes. *Flower* to 3.5 cm tall, spreading widely, synsepal with pointed apex, petals denticulate, lip minutely verrucose.

Range, elevation and habitat: To date, *Restrepia teaguei* is known only from one valley in the province of Zamora-Chinchipe, Ecuador, on the wet, eastern slopes of the Andes Mountains, where it grows as an epiphyte in mossy cloud forest at elevations of 1500–1600 m. It is locally abundant, but listed as vulnerable in the *Libro Rojo Pl. Endémic. Ecuador 2000*. Flowering may occur at any time of year.

Culture recommendations: See general culture notes for the genus. *Temperature* intermediate. This species dislikes cool temperatures.

Comments: Handsome both in plant and flower, *Restrepia teaguei* has broadly oval leaves, with a characteristic bluish cast, and flowers that are quite colourful, with reddish and orange hues. This species is uncommon in cultivation, and seems to be more slow growing. While many *Restrepia* species are cool-growing, *R. teaguei* dislikes cool temperatures, growing even more slowly and rarely flowering. When its cultivation needs are met, flowering occurs most frequently between mid-summer and mid-winter.



Figure 4.1274 (above) The flowers of *Restrepia teaguei* are flushed with reddish and orange (Grower: Andy's Orchids).



Figure 4.1275 (above) The *Restrepia teaguei* bloom in profile (Grower: Ron Parsons).

Rhetinantha M.A. Blanco

Publication: Blanco, M. A., 2007, *Lankesteriana* 7: 534

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Maxillariinae

Type species: *Maxillaria acuminata* Lindl. (now *Rhetinantha acuminata* (Lindl.) M.A. Blanco), 2007, *Lankesteriana* 7: 534.

Etymology: From the Greek *rhetinos* (resin) and *anthos* (flower), referring to the resin secreted on the labellum and occasionally on the petals of the flowers of many of the species in this genus.

Profile: A genus currently of 15 epiphytic species from Chiapas, Mexico, south through Central America into South America as far as Bolivia and Brazil.

General morphology: *Plant* somewhat clumping to shortly repent. *Pseudobulb* often ridged, usually with 1–2 subtending leafy bracts, leaves apical, 1–2 in number. *Leaf* usually narrow, thinly leathery. *Inflorescence* slender, often arising from rhizome between sheaths a few growths behind the most recently matured pseudobulb, peduncle concealed by imbricating bracts. *Flower* campanulate, rigid, narrow, acuminate perianth parts, lip secreting a sticky, resinous substance in most species, column foot short, pollinia 4.



Figure 4.1276 (above) A mass of *Rhetinantha cerifera* plants crowd over a large, fallen log in Brazil (Photo: Leonardo Desordi Lobo).

RHETINANTHA***Rhetinantha cerifera*** (Barb. Rodr.) M.A. Blanco**Publication:** *Lankesteriana* 7: 534 (2007)**Etymology:** From the Greek *ceri* (wax) and *fera* (bearing or carrying), referring to the wax-like excrescences near the margins of the lip and at the front of the lip callus.**Homotypic synonyms:** *Maxillaria cerifera* Barb. Rodr., *Ornithidium cerifera* (Barb. Rodr.) Barb. Rodr.**Morphology:** *Plant* 7.5–12 cm tall, pseudobulbs clumping to shortly repent (to 2 cm distant), rhizome ascending, roots thin, wiry, pale brown with green tips, aerial from upper pseudobulbs. *Pseudobulb* to 2.5 cm tall by 1.2 cm wide, oblong, laterally compressed, slightly rugose, bifoliate. *Leaf* 5–8 cm long, sometimes longer, by 0.6–0.8 cm wide, shortly petiolate, conduplicate at base, ligulate, apex rounded, minutely bilobed, lamina sub-erect to somewhat spreading, flexible. *Inflorescence* a raceme, 3–8 cm in length, 1–4 simultaneous inflorescences, peduncle erect, covered with numerous bracts, lateral from base of recently matured pseudobulb and along rhizome. *Flower* 2–2.8 cm wide, single, resupinate, spreading widely, dorsal sepal usually hooded, sepals apiculate, petals pointing forwards and upwards, lip acuminate, apex acute, wax-like excrescence near margins on apical half and at base of callus, not fragrant. Flowers vary from greenish to yellowish-green, and in the proportion of brown suffusion on the labellum and callus.**Range, elevation and habitat:** *Rhetinantha cerifera* is a common to abundant species, known with certainty only from Brazil. Some records state that this species occurs in Colombia, Peru, Bolivia and Venezuela, but the authors feel there is likely some confusion with the very similar and closely related *R. notylioglossa*. *Rhetinantha cerifera* is generally found at elevations of 900–1500 m in the Organ Mountains of the Mata Atlântica rainforest. It grows as an epiphyte at mid-tree to canopy levels in primary forests, as well as a lithophyte in Brazil. There, it flowers in December, and between May and July.**Culture recommendations:** *Substrate* mount vertically or horizontally on cork oak, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. It may also be grown in baskets or bulb pans in moss or a fine bark mix. *Temperature* intermediate. *Light* bright diffused to light shade. *Watering* water frequently, but allow to dry slightly between waterings. This species does not require a dormancy. Plants appreciate regular misting. *Humidity* medium. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.**Figure 4.1277 (above)** The attractive, greenish blooms of *Rhetinantha cerifera* are produced in profusion (Grower: Judy Carney).

RHETINANTHA

Comments: Seen with some frequency in collections, *Rhetinantha cerifera* has much to offer collectors. The plants easily grow into specimen sized individuals and can be prolific bloomers. The beautiful, relatively long-lasting, soft green flowers have a curious, bright white, sticky, raised, v-shaped, wax-like accumulation near the margins of the lip, as well as at the base of the callus. It is completely confused with *R. notylioglossa*, but the latter species can be distinguished by its typically orangey flowers with more forward-pointing petals that nearly obscure the column, almost meeting at the apices. Additionally, *R. notylioglossa* has three leaves per pseudobulb. Many sources consider the two species synonymous, but at the time of writing, they are currently regarded as two discrete species. *Rhetinantha cerifera* tends to bloom between summer and autumn in cultivation, but plants may bloom at other times as well.



Figure 4.1278 (above) *Rhetinantha notylioglossa* photographed *in situ*, Ecuador. This taxon is extremely close to *R. cerifera*, and is believed by many to be the same species (Photo: Eric Hunt).

Rodriguezia Ruiz & Pav.

Publication: Ruiz López, H. & Pavon, J. A., 1794, *Fl. Peruv. Prodr.*: 115

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Rodriguezia lanceolata* Ruiz & Pav., 1798, *Syst. Veg. Fl. Peruv. Chil.*: 219.

Etymology: Named in honour of Don Manuel Rodríguez, 18th century Spanish botanist and apothecary.

Heterotypic synonyms: *Burlingtonia* Lindl., *Physanthera* Bertero ex Steud.

Profile: A large, widespread genus of nearly 50 species. They range from Mexico south to Bolivia and Brazil, as well as islands in the Caribbean. These plants usually occur as twig epiphytes, growing at elevations from near sea level to 1500 m in various habitats, sometimes on cultivated shrubs and trees.

General morphology: *Plant* sympodial, clumping to long repent, roots usually numerous, filiform, many hanging free. *Pseudobulb* laterally compressed, often ridged with age, subtended by leafy or papery bracts, leaves apical, usually unifoliate. *Leaf* erect, often rigid, leathery. *Inflorescence* a raceme, erect to pendent, slender, floral bracts inconspicuous, lateral from base of pseudobulb. *Flowers* few to many in number, usually resupinate, widely spreading to campanulate, sometimes tubular, sepals and petals dissimilar, lateral sepals fused at base for their length forming spur, lip unlobed or tri-lobed, column club-shaped, footless, with pair of terminal teeth, pollinia 4, in two unequal, tightly appressed pairs on common stipe with minute viscidium.



Figure 4.1279 (above) The exuberantly pink-coloured flowers of the type species of the genus, *Rodriguezia lanceolata* (Grower: Judy Carney).

RODRIGUEZIA***Rodriguezia granadensis*** (Lindl.) Rchb.f.**Publication:** *Bot. Zeitung (Berlin)* 10: 771 (1852)**Etymology:** From the Republic of New Granada, 1830–1858, which consisted of present day Colombia along with parts of Panama, Ecuador and Venezuela.**Homotypic synonym:** *Burlingtonia granadensis* Lindl.**Morphology:** *Plant* to 12 cm tall, clumping, occasionally branching, erect to sub-erect. *Pseudobulb* to 2.5 cm tall by 1.2 cm wide, oblong-ellipsoid to ovoid, ribbed, partially obscured by subtending leafy bracts. *Leaf* to 10 cm long by 3 cm wide, sessile, slightly folded, lanceolate, apex acute, somewhat flexible. *Inflorescence* a raceme, to 15 cm in length, sub-erect to pendent, lateral from base of recently matured pseudobulb. *Flower* 3 cm wide by 5 cm long including spur, to 9 in number, simultaneous, resupinate, campanulate, nodding, column and callus not aligned, asymmetrical, spur to 3 cm in length, triquetrous, slightly inflated towards apex, broader at base, fragrant. Flowers variable in colour from white to white with rose edges, yellowish, greenish or suffused with purple.**Range, elevation and habitat:** *Rodriguezia granadensis* is found in Colombia, in the departments of Antioquia and Valle del Cauca, at elevations of 1450–1810 m. It is also found in Ecuador, and possibly in Panama and Peru. There is limited habitat information for the species, except that it is a relatively frequent epiphyte in montane rainforest. In Colombia, flowering tends to occur between March and April, and October to November. Conservation status unknown.**Culture recommendations:** *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, with little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture due to its long, wiry, prolific roots, which require good air circulation and do not tolerate constant moisture. *Temperature* intermediate. *Light* light shade. *Watering* water frequently, but allow to dry briefly between waterings; do not keep moist. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.**Comments:** In a family known for its zygomorphic symmetry, the elegant *Rodriguezia granadensis* stands out. At first glance, the asymmetrical blooms appear to have an off-centre appearance, but this is part of the charm of this species. The full, overlapping segments come in a pallet of generally pastel colour forms, all worth acquiring. The crystalline flowers of this somewhat uncommon species tend to appear from early autumn to mid-spring.**Figure 4.1280 (above)** The flowers of *Rodriguezia granadensis* are unusual amongst most orchids for being asymmetric (Grower: Marni Turkel).



Figure 4.1281 (above) *Rodriguezia granadensis* with cream coloured flowers (Grower: Marni Turkel).

Figure 4.1282 (below) A white form of *Rodriguezia granadensis* (Grower: Marni Turkel).

Figure 4.1283 (above) A pinkish form of *Rodriguezia granadensis* (Grower: Marni Turkel).

Figure 4.1284 (below) The pendent inflorescence of *Rodriguezia granadensis* (Grower and Photo: Marni Turkel).

RODRIGUEZIA

Rodriguezia lehmannii Rchb.f.

Publication: *Gard. Chron. n.s.* 19: 403 (1883)

Etymology: Named in honour of Consul Freiderich Carl Lehmann (1850–1903), German collector of Colombian and Ecuadorian species. Lehmann lived in Popoyán, Colombia, and had numerous orchids named after him.

Heterotypic synonym: *Rodriguezia teuscheri* Garay.

Morphology: *Plant* to 10 cm tall, clumping, occasionally branching, erect to sub-erect. *Pseudobulb* to 2 cm tall by 0.7 cm wide, narrowly elliptical, laterally compressed, sides somewhat flattened, lacking leafy bracts, leaves apical, unifoliate. *Leaf* to 8 cm long by 1.3 cm wide, subpetiolate, tapered abruptly and folded at base, narrowly elliptical, margins upward-angled, apex acute, lamina erect to spreading, somewhat rigid, dorsally channelled, ventrally keeled. *Inflorescence* a raceme, to 1 cm in length, spreading to descending, lateral from recently matured pseudobulbs. *Flower* to 5 cm long including spur, 2–5 in number, simultaneous, resupinate, semi-nodding, tubular, flaring at apex, lip forward projecting, dorsal sepal concave, hood-like, spur rear-projecting for most of length, but curving forward sharply near apex, lip callus pair of raised keels, ovary long, pedicellate. Flowers vary in colour from yellowish white to suffused with rose.

Range, elevation and habitat: This species occurs in western Colombia and Ecuador (Cañar, Carchi, Cotopaxi, Imbabura and Pichincha). It grows as an epiphyte in low montane to wet cloud forest on the Western slopes of the Andes, at elevations from 200–2000 m. It blooms from October to March and from May to June in nature. This species is listed as vulnerable in the *Libro Rojo Pl. Colombia*.

Culture recommendations: *Substrate* mount on cork oak, rough-barked hardwood, rough wood shingles or tree fern, with little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture due to its long, wiry, prolific roots, which require good air circulation and do not tolerate constant moisture. *Temperature* intermediate to warm. *Light* light shade. *Watering* water frequently, but allow to dry completely between waterings. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: One of the many beautiful species of *Rodriguezia*, the graceful flowers of *R. lehmannii* have forward-pointing segments that flare at the apices. The background colour of the flowers can be buff to pink, while the relatively broad lip can be darker. Most individuals of this species have a yellowish, v-shaped callus and darker, radiating reddish-purple veins. This species is one of the few in the genus that lacks typical, subtending leafy bracts. It blooms most frequently between mid-spring and late autumn in cultivation.



Figure 4.1285 (above) The graceful flower of *Rodriguezia lehmannii* (Grower: Marni Turkel).



Figure 4.1286 (above) A pair of buff coloured *Rodriguezia lehmannii* blooms (Grower: Marni Turkel).

Saccolabiopsis J.J.Sm.

Publication: Smith, J. J., 1918, *Bull. Jard. Bot. Buitenzorg* II, 26: 93

Subfamily: Epidendroideae
Tribe: Vandeae
Subtribe: Aeridineae

Type species: *Saccolabiopsis bakhuizenii* J.J.Sm., 1918, *Bull. Jard. Bot. Buitenzorg* II, 26: 93.

Etymology: *Saccolabium*, a genus of tropical **Asian** orchids in the Aeridinae, with the Greek suffix *-opsis* (similar to), indicating the morphological similarity between plants of these two genera.

Profile: A small genus of approximately 12 epiphytic species that range from Indonesia, New Guinea and eastern Australia to the islands of the southwest Pacific. They are usually found in humid forest or the drier types of rainforest.

General morphology: *Plant* monopodial, stem abbreviate, sparsely branching, leaves distichous, roots thin, smooth. *Leaf* sessile, oblong-elliptic, thinly textured. *Inflorescence* lax, lateral/axillary. *Flowers* minute, many in number, thin textured, sepals and petals similar, gaping, lip obscurely 3-lobed, firmly adnate to column base, saccate or spurred, without internal appendages, column small, cylindrical, lacking foot, pollinia 2.



Figure 4.1287 (above) A flowering *Saccolabiopsis armitii* photographed *in situ* amongst dry vine scrub, near Undara, North Queensland, at an elevation of 770 m (Photo: James Walker).

SACCOLABIOPSIS***Saccolabiopsis armitii* (F.Muell.) Dockrill****Publication:** *Australas. Sarcanthinae* 30 (1967)**Etymology:** Named to honour Captain William Edington de Margrat Armit (1848–1901), a Belgian born officer of the Queensland Mounted Police who collected plants in northern Queensland for F. Mueller.**Homotypic synonym:** *Saccolabium armitii* (F.Muell.) Rupp.**Heterotypic synonyms:** *Cleisostoma nugentii* F.M.Bailey, *Cleisostoma orbiculare* Rupp, *Saccolabium orbiculare* (Rupp) Rupp.**Morphology:** *Plant* 6–12 cm wide, stem 2–5 cm tall, usually single, pendent, leaves 3–6 in number. *Leaf* 3–6 cm long by 1–1.2 cm wide, narrowly elliptic, apex sub-acute to acute, lamina falcate, often spotted with purple. *Inflorescence* a raceme to (rarely) sparsely branching panicle, to 3 simultaneous inflorescences, 3–9 cm in length, stiffly pendent, green to purple in colour, flowers facing apex, slender but thicker distally. *Flower* to 0.7 cm tall, to 50 in number, progressively flowering with many open simultaneously, not spreading widely, campanulate, resupinate, spur large, prominent, forward-pointing.**Range, elevation and habitat:** *Saccolabiopsis armitii* is found in lowland forests in northeastern to central eastern Queensland, Australia, as well as in Papua New Guinea, at elevations ranging from sea level to 200 m. It is a locally common epiphyte on twigs and small tree trunks in coastal scrub, dry semi-deciduous thickets and dry rainforest up to 250 km from the coast, where it is often found in brightly lit, exposed situations. Plants are found in disjunct populations, and some of the habitats are extremely harsh, with prolonged dry periods between May and December, when the plants may lose their leaves entirely. This species grows with *Dendrobium bowmanii* Benth., *D. linguiforme* var. *nugentii*, *Sarcochilus minutiflos* F.M. Bailey, and *S. dilatatus* (F.Muell.) in parts of range; in other areas it is found growing with *D. discolor* Lindl. and *Oberonia flavescens* D.L.Jones & M.A.Clem. In nature, flowering occurs between September and December. *Saccolabiopsis armitii* is not considered threatened.**Culture recommendations:** *Substrate* mount on flat pieces of cork bark, rough-barked hardwood or rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss. Ensure that humidity is high. This species is not suited to potted culture; it is a twig epiphyte in nature, with roots that require good air circulation and situations that do not afford constant moisture. *Temperature* warm to intermediate during the growing season (spring through autumn) and cool in the winter. This species has been known to tolerate 0 °C (32 °F) for brief periods in nature, but in cultivation it is best kept above 10 °C (50 °F). *Light* bright diffuse to light shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency during the winter months, but do**Figure 4.1288 (above)** *Saccolabiopsis armitii* flowers hang from their inflorescences (Grower: Unknown).**Figure 4.1289 (above)** *Saccolabiopsis armitii* in cultivation. It is rarely seen outside of Australia (Grower: Mike Harrison. Photo: Jim Cootes).

SACCOLABIOPSIS

not withhold. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly. This species is considered difficult to keep alive for any period of time. Try to propagate by seed whenever possible.

Comments: A species rarely, if ever, seen outside Australia, *Saccolabiopsis armitii* is considered difficult to maintain in the long-term, and seemingly healthy plants can suddenly drop their leaves and quickly die for no apparent reason. Several species of Australian monopodial orchid have this tendency, including some *Sarcochilus*, *Papillilabium beckleri* and *Schistotylus pupuratus*. The densely flowered inflorescences are quite charming and differ distinctly from its aforementioned relatives. Flowering in cultivation occurs during the spring, as in nature.



Figure 4.1290 (above) The flowers of *Saccolabiopsis armitii* captured in detail (Grower: John Roberts).

Sarcochilus R.Br.

Publication: Brown, R., 1810, *Prodr. Fl. Nov. Holl.*: 332

Subfamily: Epidendroideae

Tribe: Vandaeae

Subtribe: Aeridinae

Type species: *Sarcochilus falcatus* R.Br., 1810, *Prodr. Fl. Nov. Holl.*: 332.

Etymology: From the Greek *sarcos* (fleshy) and *cheilos* (lip), referring to the distinctive form of the lip.

Heterotypic synonyms: *Gunnia* Lindl., *Monanthochilus* (Schltr.) R.Rice, *Parasarcochilus* Dockrill.

Profile: A genus of more than 25 epiphytic or lithophytic species from New Guinea, Australia (states of New South Wales, Queensland, Tasmania and Victoria) and New Caledonia.

General morphology: *Plant* monopodial, stems often short, single to clumping, leaf bases imbricating, leaves distichous, few to many in number, roots long, sometimes extending several feet from the plant. *Leaf* often strap-like, sometimes falcate, leathery, sometimes fleshy. *Inflorescence* a raceme, sometimes several simultaneous inflorescences, ascending to pendent, axillary. *Flowers* resupinate, few to many flowers, usually simultaneous, fleshy, sepals and petals subsimilar, lip trilobed, generally saccate and often hinged to apex of column foot, lateral lobes large, often erect, mid-lobe small with basal spur, callus prominent, grooved.



Figure 4.1291 (above left and right) Different flowering plants of *Sarcochilus olivaceus* photographed *in situ*, New South Wales, Australia. Many plants of this species can be regarded as miniature (Photos: Ron Parsons).

SARCOCHILUS

Sarcochilus australis (Lindl.) Rchb.f. in W.G. Walpers

Publication: *Ann. Bot. Syst.* 6: 501 (1863)

Etymology: From the Latin *australis* (southern, of the south), referring to this southernmost species of the genus.

Homotypic synonyms: *Gunnia australis* Lindl., *Thrixspermum australe* (Lindl.) Rchb.f.

Heterotypic synonyms: *Gunnia picta* Lindl., *Sarcochilus barklyanus* F.Muell., *Sarcochilus gunnii* F.Muell., *Sarcochilus pictus* (Lindl.) Rchb.f., *Thrixspermum pictum* (Lindl.) Rchb.f.

Morphology: *Plant* 4–14 cm wide, stem 2–7 cm long, rarely longer, often pendent, usually single, if multiple growths, often in response to damage to growing point, leaves 3–10 in number, roots long, generally not profuse. *Leaf* 4–7.5 cm long by 1–1.4 cm wide, narrowly to broadly lanceolate, apex acute, lamina falcate to occasionally straight, thinly leathery. *Inflorescence* a somewhat loose raceme, to 4 simultaneous inflorescences, to 16 cm long, descending to pendent, flowers secund. *Flower* 1.6–1.8 cm tall, to 22 in number, simultaneous, widely spreading, fragrant. Flowers vary slightly in shape and colour, green, greenish-brown, brown or pinkish-brown.

Range, elevation and habitat: *Sarcochilus australis* is a common and locally abundant eastern Australian species, ranging from southeastern Queensland to southeastern New South Wales, eastern and southern Victoria and northern and eastern Tasmania. It is found in shaded situations, often near water, in fern gullies, gorges, on stream banks and nearby humid slopes of rain forest, tall open forest and moist to wet sclerophyll forest, generally at elevations between sea level and 1000 m. It grows epiphytically on small trunks, branches and twigs. When growing as a twig epiphyte, it is sometimes found hanging by 2–3 roots. It has been noted that plants growing on the trunks of trees are usually larger in size and longer lived. In nature the plants have a long root run. In New South Wales, it can be found with *Plectorrhiza tridentata* (Lindl.) Dockrill and *Schistotylus purpuratus* (Rupp.) Dockrill. In Tasmania, *S. australis* often grows in large colonies on musk trees (*Olearia*). This species flowers between early and late spring, and occasionally into early summer.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss, but ensure that humidity is high. The mount used should be of a size good enough to accommodate the long root run. This species is not suited to potted culture; as a twig epiphyte in nature, its long roots require good air circulation and dislike constant moisture. *Temperature* intermediate to cool during the growing season of spring and autumn; keep cool in the winter. This species can tolerate temperatures down to 0 °C (32 °F) for brief periods in nature, but in



Figure 4.1292 (above) *Sarcochilus australis* flowers are attractive and fragrant (Grower: Mike Harrison).

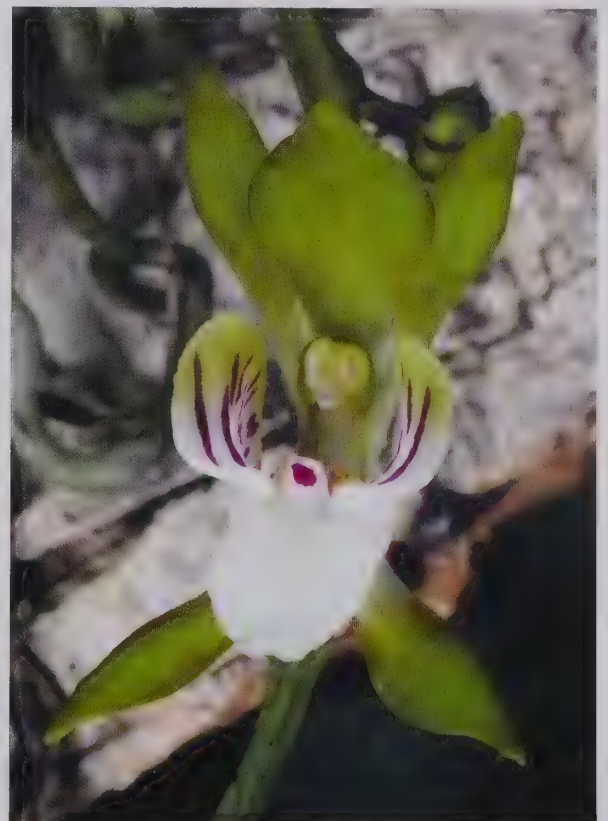


Figure 4.1293 (above) A different *Sarcochilus australis* bloom (Grower: Ron Parsons).

SARCOCHILUS

cultivation it is best to keep plants above 5 °C (40 °F). *Light* light shade to deep shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency slightly during winter months, but do not withhold water. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, occasionally by division. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency during winter. This species can be difficult to keep alive in the long term, although some plants are known to have been in cultivation for several years. *Sarcochilus australis* is one of several species in this genus that can die suddenly without any apparent reason.

Comments: *Sarcochilus australis* is perhaps the most widespread species of the genus, and its range reaches further south than that of any other. Although this gem is in many Australian collections, very few plants are found outside of their home country. The fragrant flowers are exquisite, with widely spreading segments and a contrasting white lip. The slipper-like lip has red veins on the inside of the side-lobes, though there are rare, albinistic forms with unmarked lips. One of several *Sarcochilus* species that can die suddenly without apparent cause, plants may nonetheless live for several years in cultivation. *Sarcochilus australis* flowers in the spring in collections.



Figure 4.1295 (above) The flower of *Sarcochilus australis* is fragrant and may vary slightly in shape (Grower: Ron Parsons).

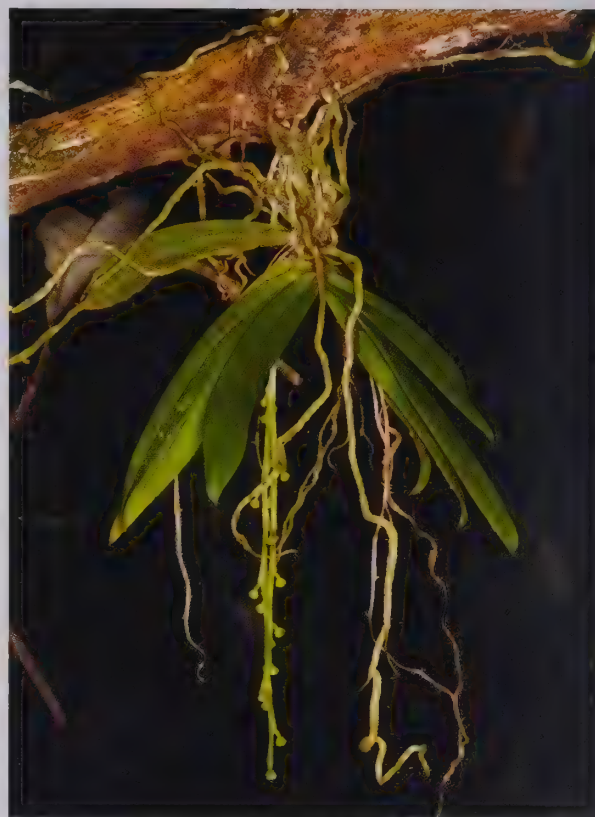


Figure 4.1294 (above) *Sarcochilus australis* photographed in northwestern Tasmania (Photo: Ron Parsons).



Figure 4.1296 (above) *Sarcochilus australis*, photographed *in situ* in Tasmania, bearing an unusually large number of flowers (Photo: Roger Hay).

SARCOCHILUS

Sarcochilus ceciliae F.Muell.

Publication: *Fragm.* 5: 42 (1865)

Etymology: Named for Ms. Cecilia Viennot van Maseyk, an Australian orchid enthusiast of the 1800s.

Homotypic synonyms: *Sarcochilus eriochilus* Fitzg., *Sarcochilus ceciliae* var. *albus* T.E.Hunt, *Sarcochilus ceciliae* var. *eriochilus* (Fitzg.) Dockrill, *Thrixspermum ceciliae* (F.Muell.) Rchb.f.

Morphology: *Plant* to 14 cm wide (usually less), stem 4–6 cm (rarely to 12 cm) tall, much branched at base to form clumps, erect, leaves to many in number. *Leaf* 4–7 cm long by 0.5–1 cm wide, narrowly linear, apex acute, lamina straight, channelled, leathery, fleshy, covered with wart-like spots. *Inflorescence* a raceme, to 20 cm in length, to 3 simultaneous inflorescences, erect to sub-erect, slender, congested towards apex. *Flower* 0.5–1 cm wide, to 20 in number, to 6 open simultaneously, successive, facing apex, campanulate to widely spreading. Flower colour varies from pale pink to a dark pink. There is a rare white form.

Range, elevation and habitat: *Sarcochilus ceciliae* occurs in northeastern Australia, from Queensland to southeastern New South Wales, at elevations between 300 and 900 m (rarely as high as 1050 m). It is found in a variety of habitats including rain forest, fairly open forest and moist, humid, scrub forest, growing in somewhat shady to quite exposed situations. It may experience extreme midday temperatures, and leaves may become heavily pigmented as a result of exposure. It usually grows as a lithophyte on cliffs and rocks, and rarely as an epiphyte on the base of tree trunks. Plants are frequently found in crevices and pockets of leaf litter. *Sarcochilus ceciliae* blooms between October and December. Although not regarded as threatened, some populations have been heavily collected.

Culture recommendations: *Substrate* mount on flat pieces of cork bark, rough-barked hardwood, rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss, ensuring that humidity is high. This species may be potted in small pots or baskets using an open, fast draining, fine bark mix. Moss is not recommended because the roots may become too wet; the roots of this species must dry out between waterings. *Temperature* intermediate to warm during the growing season (spring through autumn); cool in the winter. This species has been known to tolerate temperatures down to 0 °C (32 °F) for brief periods in nature. In cultivation it is best not to allow temperatures to go below 7–10 °C (45–50 °F). *Light* bright diffuse to light shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency during the winter months, but do not withhold. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed or division. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency during winter.



Figure 4.1297 (above) The pretty blooms of *Sarcochilus ceciliae*, of northeastern Australia (Grower: Marni Turkel).



Figure 4.1298 (above) *Sarcochilus ceciliae* f. *alba* has flowers of pure white (Grower: Anna Chai).

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Comments: One of only a few species of the genus that is relatively available and common in cultivation outside of Australia, *Sarcochilus ceciliae* is also justifiably popular. It blooms later than most of its congeners, in late spring to mid-summer, and the inflorescences, each with several, simultaneous blooms, can last a month or more. *Sarcochilus roseus* (Clemesha) Clemesha, and a taxon known as *S. eriochilus* Fitzg., are probably varieties of *S. ceciliae* at the northern and southern limits of its range respectively. Southern populations (*S. eriochilus*) are smaller in both plant and flower size. The flowers of Queensland populations tend to be of a darker pink, and flowers of all varieties can be larger in cultivation, particularly when line-bred.



Figure 4.1299 (above left) *Sarcochilus ceciliae* growing lithophytically in Queensland (Photo: Ron Parsons).

Figure 4.1300 (above right) A plant of *Sarcochilus ceciliae* in detail (Photo: Ron Parsons).

Figure 4.1301 (below) Flowers of *Sarcochilus ceciliae* are long lasting and attractive (Grower: Cindy Hill).

Figure 4.1302 (facing page) The form of *Sarcochilus ceciliae* known as *S. eriochilus* is from the southern end of the species range (Grower: Ron Parsons).



SARCOCHILUS***Sarcochilus dilatatus*** F.Muell.**Publication:** *Fragm.* 1: 191 (1859)**Etymology:** From the Latin *dilatata* (dilated, widely expanded), in reference to the widely spreading flowers.**Homotypic synonym:** *Thrixspermum dilatatum* (F.Muell.) Rchb.f.**Heterotypic synonym:** *Sarcochilus bancroftii* F.M.Bailey.**Morphology:** *Plant* to 12 cm wide, stem 1–3 cm tall, sparsely branched, semi-pendent to pendent, leaves, 3–12 in number, roots long, not profuse. *Leaf* 3–6 cm long by 0.6–1 cm wide, long-oblong, apex acute, lamina falcate to almost straight, thinly leathery, suffused with purplish in strong light. *Inflorescence* a raceme, 3–7 cm in length, to 4 simultaneous inflorescences, descending to pendent, slender, sometimes spotted with purple. *Flower* 1.2–2 cm tall, to 12 in number, 1–3 open at a time, successive, widely spreading, lip pouch-like. Flowers vary in colour from chestnut to dark brown.**Range, elevation and habitat:** *Sarcochilus dilatatus* is an endemic, locally common northeastern Australian species from central eastern Queensland and northeastern New South Wales. It grows as an epiphyte on small trunks and twigs, and occasionally as a lithophyte. It is found in dry scrub, often along water courses, in drier rainforest on humid slopes and ridges, and occasionally in moist rainforest, at elevations between sea level and 400 m. Plants growing on the trunks of trees are usually larger in size and longer lived. In nature, plants have a long root run. Sometimes found growing on nearby rocks are *S. ceciliae* and *Oberonia titania* Lindl.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss. Ensure that humidity is high. The mount should be of good size to accommodate the long roots. This species is not suited to potted culture; as a twig epiphyte, its long roots require good air circulation and dislike constant moisture. *Temperature* warm-intermediate to intermediate during the spring to autumn growing season; keep slightly cooler in winter. This species has been known to survive temperatures to 0 °C (32 °F) for brief periods in nature, but in cultivation it is best to keep plants above 10 °C (50 °F). *Light* light shade to medium shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency during the winter months, but do not withhold. *Humidity* high. *Air movement* good to**Figure 4.1303 (above)** The epiphytic *Sarcochilus dilatatus* produces striking flowers with strongly contrasting colouration (Grower: John Roberts).

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brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly, withholding during winter. This taxon is rarely seen outside of Australia. If acquired, this desirable plant should be propagated by seed in order to make it more widely available. *Sarcochilus dilatatus* is one of the species in the genus that can die suddenly without any apparent cause.

Comments: In common with some of its congeners, *Sarcochilus dilatatus* is rarely, if ever, seen in collections outside of Australia. It can also be quite difficult to maintain in cultivation for long periods, but it is possible that these related taxa are naturally relatively short-lived plants. Nonetheless, *S. dilatatus* is well worth attempting should the opportunity arise. For many difficult to cultivate orchid species, seed-raised young are often distinctly more easy to grow, and this may also be the case with *Sarcochilus*. Where possible, plants should be propagated for dispersal to other growers. A related species, *S. serrulatus* D.L. Jones, is quite similar, but the broader, brick red sepals and petals are distinctly club-shaped, and the margins of the leaves minutely serrate. Both *Sarcochilus dilatatus* and *S. serrulatus* are spring-bloomers in cultivation, as they are in nature.



Figure 4.1304 (above) The stunning *Sarcochilus serrulatus* produces flowers with brick red sepals and petals (Grower: Mike Harrison).

SARCOCHILUS***Sarcochilus hillii*** (F.Muell.) F.Muell.**Publication:** *Fragm.* 2: 94 (1860)**Etymology:** Named for the original collector, phytologist Walter T. Hill (1820–1904), first Superintendent of the Brisbane Botanical Gardens and Colonial Botanist.**Homotypic synonyms:** *Dendrobium hillii* F.Muell., *Thrixspermum hillii* (F.Muell.) Rchb.f.,**Morphology:** *Plant* to 10 cm long, stem 2–3 cm (rarely to 5 cm), leaves 2–10 in number, pendent, usually single, roots very long, but not profuse. *Leaf* to 10 cm long by 0.3–0.5 cm wide, linear, apex acute, lamina spotted with purplish. *Inflorescence* a raceme (rarely a panicle), 5–8 (rarely 12) cm in length, to 4 simultaneous inflorescences, generally descending to pendent, but erect in relation to plant, somewhat zig-zag. *Flower* to 1 cm wide, 2–15 in number, successive, 1–3 open at a time, flowers individually short-lived, usually campanulate to spreading widely. Flower colour varies from soft pink to white.**Range, elevation and habitat:** *Sarcochilus hillii* is a widespread and locally abundant species that sometimes forms colonies; a single tree can bear hundreds of plants. It occurs in eastern Australia, from central eastern Queensland to southeastern New South Wales (from the coast to the tablelands), as well as in New Caledonia. This species grows as a long-rooted epiphyte on small branches and twigs, and rarely as a lithophyte. It is usually found in drier rainforest along humid slopes and gullies, growing in heavily shaded to quite open situations at elevations near sea level to 1000 m. In coastal regions it favours gallery rainforest. Plants growing on the trunks of trees are usually longer lived and larger in size; it is often found growing with *S. falcatus* R.Br., *S. olivaceus* Lindl., *S. spathulatus* R.S.Rogers and *Papillilabium beckeri* (F.Muell.ex Benth) Dockrill. Flowering generally occurs between mid-spring and early summer in nature.**Culture recommendations:** *Substrate* mount on flat pieces of cork bark, rough-barked hardwood, rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss. Ensure that humidity is high. The mount should be of a size large enough to accommodate the long root run. This species is not suited to potted culture; as a twig epiphyte, its long roots require good air circulation and dislike constant moisture. *Temperature* intermediate during the spring to autumn; growing season slightly cooler in winter. This species has been known to survive temperatures down to 0 °C (32 °F) for brief periods in nature. In cultivation it is best to keep temperatures above 10 °C (50 °F). *Light* light shade to medium shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency during the winter months, but do not withhold. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly, withholding during winter. This species is rarely seen outside of Australia. If acquired, this desirable species should be propagated by seed to increase its**Figure 4.1305 (above)** The delicately pretty flowers of *Sarcochilus hillii* (Grower: Mike Harrison).

SARCOCHILUS

availability. This species is considered difficult to grow, and is one of those species that may suddenly die without apparent cause.

Comments: The charming *Sarcochilus hillii* has small, pink flowers reminiscent of those of *S. ceciliae*. In common with that species, it is successively blooming, but plants are usually pendent and the flowers relatively short-lived, each bloom lasting only 2–3 days. Almost never seen in collections outside of Australia, *S. hillii* is considered difficult to grow, even in its native country. Flowering follows the same pattern as in nature, and blooms can be expected from mid-spring to early summer. Closely related to *Sarcochilus hillii* is *S. tricallatus* (Rupp) Rupp, a species from the Cape York Peninsula of Queensland; it bears white, crystalline flowers and blooms between November and January.



Figure 4.1307 (above) An epiphytic *Sarcochilus hillii* plant growing on a tree in New South Wales, Australia (Photo: Ron Parsons).



Figure 4.1306 (above) The flower of *Sarcochilus hillii* in detail (Grower: Mike Harrison).

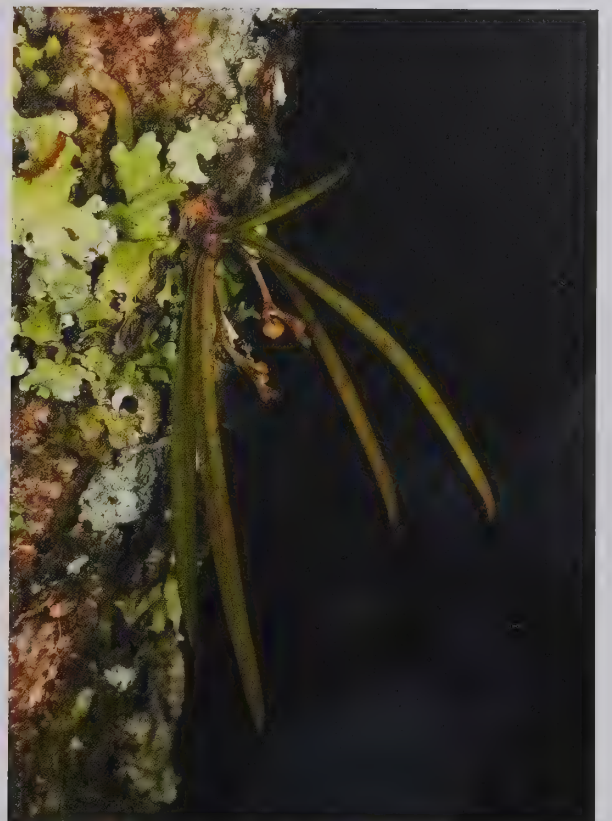


Figure 4.1308 (above) *Sarcochilus hillii*, also from a site in New South Wales, Australia (Photo: Ron Parsons).

SARCOCHILUS

Sarcochilus spathulatus R.S.Rogers

Publication: *Trans. & Proc. Roy. Soc. South Australia* 51: 1 (1927)

Etymology: From the Latin *spathulatus* (shaped like a spoon), in reference to the lateral lobes of the lip.

Homotypic synonyms: *Parasarcochilus spathulatus* (R.S.Rogers) Dockrill, *Pteroceras spathulatum* (R.S.Rogers) Garay.

Heterotypic synonym: *Sarcochilus harriganiae* Rupp.

Morphology: *Plant* to 10 cm wide, stem 2–4 cm long, usually single, rarely branching at base, leaves 2–10 in number, leaves usually hanging at an angle, roots long, but not profuse. *Leaf* 3–11 cm long by 1.4–2.3 cm wide, narrowly oblong to narrowly obovate to lanceolate, apex acute, lamina often falcate, lax, leathery, flexible, often spotted with purple. *Inflorescence* a raceme, 1–2 simultaneous inflorescences, to 6 cm in length, slender, descending to pendent. *Flower* to 1.8 cm tall, 1–6 in number, generally simultaneous, widely spreading, spur short, hollow. Flower colour varies from chocolate brown to caramel to light green, and the lip can have varying amounts of spotting, with some forms having entirely pale colours.

Range, elevation and habitat: *Sarcochilus spathulatus* is a widespread, but uncommon eastern Australian endemic from southeastern Queensland to central New South Wales, at elevations of 200–1000 m, but most frequently around 600 m. It grows as an epiphyte on small trunks and outer twigs and branches in deep shade to moderate light, often with pendent, epiphytic mosses, sometimes hanging by 1–2 roots. This species is found in gallery or drier rainforest slopes, or moist scrub, often near streams. Plants growing on the trunks of trees are usually larger in size and longer lived. The tree heath (*Trochocarpa*) is a particularly good host. *Sarcochilus spathulatus* often grows with *S. falcatus*, *S. olivaceus* Lindl., *S. hillii* and *Plectrorhiza tridentata*. This species has been known to survive temperatures close to freezing in nature for brief periods. It is a late winter to mid-spring flowering plant.

Culture recommendations: *Substrate* mount on flat pieces of cork bark, rough-barked hardwood, rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss. Ensure that humidity is high. The mount should be of a size good enough to accommodate the long root run. This species is not suited to potted culture; as a twig epiphyte, its long roots require good air circulation and dislike constant moisture. *Temperature* intermediate during the spring to autumn growing season; cool in winter. This species has been known to survive temperatures to 0 °C (32 °F) for brief periods in nature. In cultivation it is best to keep plants above 10 °C (50 °F). *Light* light shade to medium shade. *Watering* water frequently, but allow to dry briefly between waterings. Reduce watering frequency during the winter months. *Humidity* high. *Air movement* good to

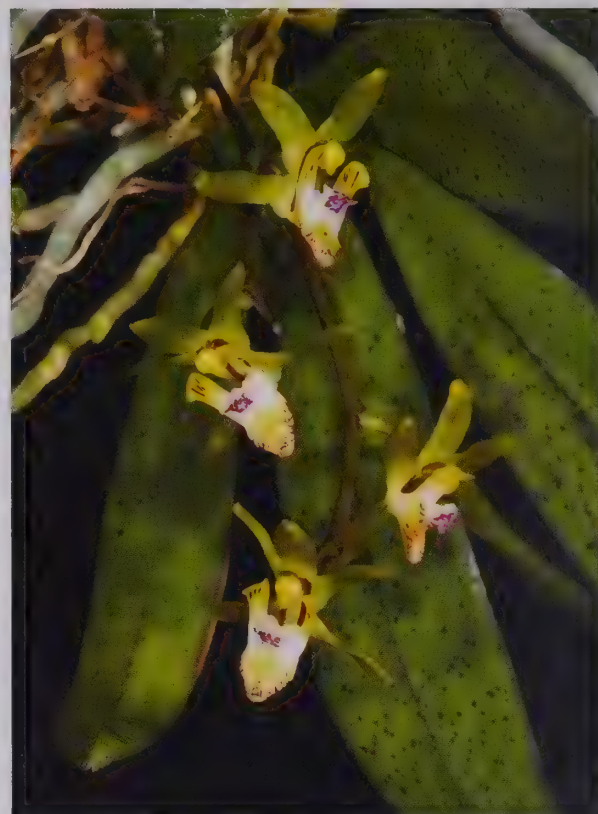


Figure 4.1309 (above) The flower of *Sarcochilus spathulatus* in detail (Grower: Ron Parsons).



Figure 4.1310 (above) *Sarcochilus spathulatus* growing in situ, New South Wales, Australia (Photo: Ron Parsons).

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brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly, withholding during winter. This species is rarely seen outside of Australia. If possible, this desirable species should be propagated by seed to increase its availability. This species is considered difficult to grow and is one of several species in the genus that can die with no apparent cause.

Comments: A delightful little species, *Sarcochilus spathulatus* has lovely flowers that are both cryptic in colour and habit. The green to brownish flowers hang from relatively short spikes that must generally be viewed by lifting the leaves. The intricate blooms have an interesting, slipper-like lip with proportionately large side-lobes. Rarely seen in cultivation outside of Australia, this is another species that can be difficult to maintain in the long-term in cultivation, although the authors have grown one for several years. Flowering occurs in the spring in cultivation.



Figure 4.1311 (above) A flowering *Sarcochilus spathulatus* specimen growing epiphytically in New South Wales, Australia (Photo: Ron Parsons).



Figure 4.1312 (above) A pair of *Sarcochilus spathulatus* flowers in detail (Grower: Ron Parsons).

Scaphosepalum Pfitzer

Publication: Pfitzer, E. H. H., 1888, *Nat. Pflanzenfam.* 2(7): 139

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Scaphosepalum verrucosum* (Rchb.f.) Pfitzer, 1888, *Nat. Pflanzenfam.* 2(6): 139.

Etymology: From the Greek *skaphos* (boat shaped, bowl shaped) and *sepalum* (sepal), referring to the concave, boat-like sepals of the type species and many other taxa in this genus.

Profile: Over 45 epiphytic, lithophytic or terrestrial species found growing in wet or cloud forest at elevations of 500–3200 m. They range from southern Mexico to Bolivia and French Guiana, with most species found in the Andes Mountains of Colombia and Ecuador.

General morphology: *Plant* sympodial, clumping to repent, much branching, erect. *Ramicaul* short, erect, slender, enclosed in sheaths. *Leaf* petiolate, elliptical to obovate, apex acute to acuminate, leathery. *Inflorescence* a raceme, secund or distichous, often flexuous, emerging with an annulus from low on ramicaul. *Flower* large to tiny, successive, non-resupinate, often cup shaped, dorsal sepal free, lateral sepals usually connate at base, inner surface of lateral sepals with flattened, triangular callus, dorsal and lateral sepals fleshy, occasionally hairy, usually tailed, petals fleshy, broad, multi-angular, lip deflexed, crested, entire or trilobed, hinged to column foot, column elongate, foot thick, winged with toothed apex, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species can also be grown potted in small pots, using moss or a fine bark mix. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, well-drained, not wet. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Scaphosepalum*, are prone to infection by bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1313 (above) The flower of *Scaphosepalum fimbriatum*. Most plants of this species are miniature in stature, although some grow to 18 cm tall (Grower: Duane Erdmann).

SCAPHOSEPALUM

Scaphosepalum bicolor Luer & R.Escobar

Publication: *Orquideologia* 14: 186 (1981)

Etymology: From the Latin *bi* (two) and *color* (colour), referring to the two-coloured flowers.

Morphology: *Plant* 5–11 cm tall, clumping. *Ramicaul* 1–1.5 cm tall, erect to sub-erect. *Leaf* 4–9 cm long by 1–2 cm wide, petiole 1–3 cm, narrowly elliptical, apex acute, lamina erect, thinly leathery. *Inflorescence* a congested raceme, to 13 cm long including peduncle up to 10 cm long, horizontal to semi-pendent, slender. *Flower* 1.5–2 cm tall, several in number, singly successive, not spreading widely.

Range, elevation and habitat: *Scaphosepalum bicolor* is endemic to the department of Chocó, Colombia, where it occurs in moist, coastal forest at lower elevations. No confirmed bloom-time records could be found, but it is likely that *S. bicolor* flowers at any time of year. Little is known about its conservation status.

Culture recommendations: See culture recommendations for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A species with brightly coloured flowers and long, sepaline tails, *Scaphosepalum bicolor* is quite rare in cultivation. Even so, this is a freely branching, rapidly growing species that is easy to propagate by division. The sharply downturned sepaline tails are somewhat distinctive; many people do not realise that these are extensions of the lateral sepals of these curious, non-resupinate (“upside-down”) flowers. This species blooms between late spring and late autumn in cultivation, but it is likely to flower at other times.



Figure 4.1314 (above) The curious flower of *Scaphosepalum bicolor* (Grower: J & L Orchids).



Figure 4.1315 (above) The sepaline tails of *Scaphosepalum bicolor* blooms are distinctive (Grower: J & L Orchids).

SCAPHOSEPALUM

Scaphosepalum clavellatum Luer

Publication: *Selbyana* 3: 32 (1976)

Etymology: From the Latin *clava* (club, heavy stick), referring to the clavate dorsal sepal.

Morphology: *Plant* 5.5–12 cm tall, clumping, branching, erect. *Ramicaul* 0.5–1.5 cm tall, erect, slender, enclosed in sheaths. *Leaf* 5–11 cm long by 1–1.6 cm wide, petiolate, narrowly elliptical, apex acute, lamina erect, leathery. *Inflorescence* a congested raceme, up to 19 cm long including 5–12 cm peduncle, ascending to semi-pendent, slender, flowers distichous. *Flower* 1.5–2 cm tall, several to many in number, singly successive, dorsal sepal long clavate, longer than lateral sepals, spreading.

Range, elevation and habitat: *Scaphosepalum clavellatum* is an epiphytic species with a fairly broad distribution. It occurs in Costa Rica, Panama (provinces of Chiriquí, Colón and Panamá) and Ecuador (province of Cotopaxi) at elevations of 350–1300 m in moist, low to mid-elevation montane forest. In Panama, it was found in the crown of a fallen tree in a mid-elevation moist montane forest. Little is known about its conservation status. No bloom-time records could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: Not commonly seen in cultivation, *Scaphosepalum clavellatum* has a strange little non-resupinate flower with a thickened, club-shaped dorsal sepal that is considerably longer than the lateral sepals. It is closely related to *S. manningii* Luer, a species that differs mostly in the larger cushions of the sepals. Another relative is the variable *S. microdactylum* Rolfe, but that species differs in having a thick middle sepal that is about as long as the lateral sepals, as well as smaller flowers that are borne on a more congested raceme. *Scaphosepalum clavellatum* is likely to bloom at any time in cultivation.



Figure 4.1316 (above) *Scaphosepalum clavellatum* is named after its club-shaped dorsal sepal (Grower: Lilian Severin).



Figure 4.1317 (above) An unidentified species of *Scaphosepalum* allied to both *S. clavellatum* and *S. manningii*, possibly a form of *S. microdactylum* (Grower: Unknown).

Figure 4.1318 (facing page) The flower of *Scaphosepalum manningii* (Grower: Lilian Severin).



SCAPHOSEPALUM

Scaphosepalum ovulare Luer

Publication: *Selbyana* 3: 34 (1976)

Etymology: From the Latin *ovularis* (like an egg), referring to the shape of the flowers.

Morphology: *Plant* 2–5 cm tall, clumping. *Ramicaul* 0.4–0.6 cm tall. *Leaf* 1.5–4 cm long, including 0.3–1.5 cm petiole, by 0.5–0.8 cm wide, cuneate abruptly to petiole, elliptical, apex acute, lamina erect, leathery. *Inflorescence* a sub-congested raceme, 2–5 cm in length including peduncle, descending to pendent. *Flower* 0.7–0.8 cm long, few in number, singly successive, sepals connate for length, nearly closed with small aperture at apex, lip serrate, lateral lobes broad, oblong. Flowers vary in colour from yellow to brown to maroon and in the density of spotting.

Range, elevation and habitat: *Scaphosepalum ovulare* is fairly common in the province of Napo, central Ecuador, at elevations of 600–1200 m. It grows as an epiphyte in wet, montane forest on the eastern slopes of the Andes Mountains. No confirmed bloom-time records are known, but this species is likely to bloom at any time of year in nature as it does in cultivation.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool. This species is best grown mounted due to the pendent nature of the spikes.

Comments: A near ever-blooming species with one of the smallest plants in the genus, *Scaphosepalum ovulare* has delightful, uniquely shaped little flowers. The glossy, egg-shaped blooms have only a small aperture and apex, and come in yellow, brown and maroon variations. A prolific bloomer, this species is best displayed when grown on a mount as the relatively long spikes are generally pendent. This species also does well in pots, though diligence is required to train the inflorescences to hang over the edge. Generally available and relatively easy to obtain, it is worth seeking out the various colour forms.



Figure 4.1319 (above) *Scaphosepalum ovulare* is named after its delightful, egg-shaped flowers (Grower: Kay Klumb).



Figure 4.1320 (above) A blooming specimen plant of *Scaphosepalum ovulare* is tiny indeed! (Grower: Marni Turkel).

SCAPHOSEPALUM

Scaphosepalum rapax Luer

Publication: *Selbyana* 3: 36 (1976)

Etymology: From the Latin *rapax* (grasping, rapacious), referring to the fancied appearance of the flowers to the head of a predatory beast.

Morphology: *Plant* 2–4.5 cm tall, clumping to shortly creeping, much branched, mat-forming. *Ramicaul* 0.4–0.9 cm tall, erect to sub-erect. *Leaf* 1–3.5 cm long, including 0.5–1.2 cm petiole, by 0.5–1 cm wide, elliptical, apex sub-acute, erect, lamina thinly leathery, flexible. *Inflorescence* a loose to semi-congested raceme, 1.5–4 cm in length including peduncle, sub-erect to semi-pendulous. *Flower* 0.7–1 cm tall, few in number, singly successive, sub-tubular, exterior softly prickly, pedicels to 0.5 cm.

Range, elevation and habitat: A central and southern endemic Ecuadorian species, *Scaphosepalum rapax* has been found in the provinces of Napo, Pastaza, Sucumbíos and Zamora-Chinchiipe at elevations of 450–1200 m. It grows as an epiphyte in wet montane forest. This species may flower at any time of year in nature. *Scaphosepalum rapax* is listed as near threatened in the *Libro Rojo Pl. Endémic. Ecuador 2000*.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: The dense foliage of *Scaphosepalum rapax* forms a small carpet of leaves, and is particularly attractive. Moreover, this species can bear flowers at any time of year, and even a small specimen can be in near constant bloom. The dark, cryptic flowers have short and curved sepaline tails that resemble the fangs of a snake. Somewhat uncommon in cultivation, *S. rapax* is the perfect plant for growers of unusual miniatures.



Figure 4.1321 (above) *Scaphosepalum rapax* is almost always in flower and its fascinating, dark little flowers bear sepaline tails that resemble the fangs of a snake (Grower: Ron Parsons).

Schistotylus Dockrill

Publication: Dockrill, A. W., 1967, *Australas. Sarcanthinae*: 29

Subfamily: Epidendroideae

Tribe: Vandaeae

Subtribe: Aeridinae

Type species: *Schistotylus purpuratus* (Rupp) Dockrill, 1967, *Australas. Sarcanthinae*: 30.

Etymology: From the Greek *schistos* (cleft or divide) and *tylos* (callus), referring to the divided callus on the lip of the flower.

Profile: A monotypic monopodial genus endemic to eastern Australia.

General morphology: See entry for *Schistotylus purpuratus*.



Figure 4.1322 (above) *Schistotylus purpuratus* has engaging flowers of white, brown and purple. Although the blooms are not long-lived, they are rather fragrant (Grower: David P. Banks).

SCHISTOTYLUS

Schistotylus purpuratus (Rupp) Dockrill

Publication: *Australas. Sarcanthinae*: 30 (1967)

Etymology: From the Latin *purpuratus* (purple), probably in reference to the densely purple-spotted leaves. The sepals and petals are also purple.

Homotypic synonyms: *Cleisostoma purpuratum* Rupp, *Sarcanthus purpuratus* (Rupp) Rupp.

Heterotypic synonyms: *Cleisostoma gemmatum* Rupp, *Sarcanthus gemmatum* Rupp.

Morphology: *Plant* 4–8 cm wide, stem 1–3 cm long, usually single, leaves distichous, 2–6 in number, crowded, roots numerous, long, wiry, creeping, many aerial. *Leaf* 2–4 cm long by 0.2–0.3 cm wide, linear to narrow-elliptic, apex acute, falcate, leathery, often with purple spots. *Inflorescence* a raceme, 2.5–4 cm long, 1–4 simultaneous inflorescences, pendent, slender, axillary. *Flower* 0.5–0.6 cm long, 4–10 in number, simultaneous, resupinate, not spreading widely, spur short, hollow, flowers short-lived, fragrant.

Range, elevation and habitat: Although uncommon overall, the Australian endemic, *Schistotylus purpuratus*, has highly localised populations, sometimes forming vast colonies. It is found in the coastal ranges and escarpments, often on the upper slopes and ridges, of southeastern Queensland and northeastern New South Wales at elevations from 600–1100 m. It grows epiphytically on the mossy trunks of small trees, and on the outer twigs of shrubs and small trees in a variety of habitats, including wet sclerophyll forest, rainforest, scrubland, humid patches of drier forest, cool-temperate rainforest and swampy *Leptospermum* heath. It is found in reasonably bright situations to medium shade, often near water courses. In nature it blooms in the early to mid-spring.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture; as a twig epiphyte in nature, its long roots require good air circulation and dislike constant moisture. *Temperature* intermediate during spring through autumn, cooler during the winter months. *Light* light shade to medium shade. *Watering* water frequently, but ensure that plants dry out between waterings. In winter, reduce watering frequency, but do not withhold. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency during winter. This species is considered difficult to grow and some individuals are short lived. It can die suddenly without apparent cause. It is rarely seen outside of Australia. If obtained, it should be propagated by seed to increase its availability.



Figure 4.1323 (above) Detail of a *Schistotylus purpuratus* flower. This species hails from the coastal ranges of northern New South Wales and southern Queensland, Australia (Photo: Gary Yong Gee).



Figure 4.1324 (above) *Schistotylus purpuratus* is difficult to keep alive in cultivation (Grower and Photo: Mike Harrison).

SCHISTOTYLUS

Comments: Although *Schistotylus purpuratus* is not a great beauty, it has cute, surprisingly fragrant flowers with a proportionately large lip. In common with several of the eastern Australian monopodial species, *S. purpuratus* can be difficult to grow, sometimes dying suddenly despite apparent good health. This spring bloomer is very rarely seen in collections outside of its native country. The flowers are similar to those of genus *Plectorrhiza*, and many Australian native orchid enthusiasts believe that *S. purpuratus* should be placed within that genus.



Figure 4.1325 (above) *Plectorrhiza tridentata*, the Tangle-Root Orchid, photographed *in situ*, New South Wales, Australia. Both it and its congeners are close relatives of *Schistotylus purpuratus*.

Schoenorchis Reinw. ex Blume

Publication: Blume, K. L. von, 1825, *Bijdr.*: 361

Subfamily: Epidendroideae

Tribe: Vandaeae

Subtribe: Aeridinae

Type species: *Schoenorchis juncifolia* Reinw. ex Blume, 1825, *Bijdr.*: 361.

Etymology: From the Greek *schoinos* (rush or reed) and *orchis* (orchid), referring to the rush-like leaves of the type species.

Profile: A genus of approximately 25 epiphytic species that occur in India, through much of tropical Asia, east to the islands of the southwest Pacific and south to Queensland in northeastern Australia.

General morphology: *Plant* monopodial, large to small, stems short to long, rooting at base, leaves distichous, imbricating, many in number. *Leaf* narrow, flat or terete, leathery. *Inflorescence* a raceme or panicle, to several simultaneous inflorescences, lateral, axillary. *Flower* small, one to many in number, usually resupinate, sepals and petals free, subsimilar, tubular or spreading, lip trilobed, with spur/nectary, column short, anther long, beaked, pollinia 4.



Figure 4.1326 (above) *Schoenorchis scolopendria* growing with *S. fragrans* on a tree trunk in northern Vietnam (Photo: Leonid Averyanov).

SCHOENORCHIS***Schoenorchis fragrans*** (E.C.Parish & Rchb.f.) Seidenf. & Smitinand**Publication:** *Orch. Thail. (Prelim. List)*: 611 (1963)**Etymology:** From the Latin *fragrans* (fragrance), in reference to the subtle fragrance.**Homotypic synonyms:** *Gastrochilus fragrans* (E.C.Parish & Rchb.f.) Kuntze, *Saccolabium fragrans* E.C.Parish & Rchb.f.**Heterotypic synonym:** *Schoenorchis manipurensis* Pradhan.**Morphology:** *Plant* 2–4 cm wide, stem 1–3 cm tall, occasionally larger, sometimes branched at base, leaves 3–7 in number, to 14 or more in cultivation. *Leaf* 1.5–2 cm long by 0.5–0.9 cm wide, sessile, oblong-elliptic, apex obtuse, lamina leathery, thick, rigid, papillose-rugose dorsally, often with dark purple pigment, reddish-purple ventrally. *Inflorescence* a congested raceme, peduncle much abbreviated, 1–3 or more simultaneous inflorescences, basically descending. *Flower* 0.3–0.5 cm long, to 20 (rarely more) in number, simultaneous, resupinate, spreading, crystalline in texture, lip faintly sigmoid in profile, pale to dark pink, long-lasting, fragrant.**Range, elevation and habitat:** *Schoenorchis fragrans* is a fairly widespread species, occurring in northeast India, Thailand, Myanmar, Vietnam and China (Yunnan province) at elevations of 500–1000 m where it grows on trees and rocks in seasonally wet mixed forest. In India, *S. fragrans* has been reported to grow as a lithophyte on exposed boulders, and as an epiphyte, sometimes even growing on the roots of other orchid species, such as *Renanthera imschootiana*. This species typically blooms during the summer in nature. *Schoenorchis fragrans* was recently found in the extreme northwest of Vietnam on old, gnarled, stunted trees growing on limestone. Here, the summer is rainy and temperatures range from 20–30 °C. In the drier winter it is 10–15 °C (Leonid Averyanov, pers. comms., 2012). In Vietnam it blooms from the end of July to September. Conservation status unknown, but likely threatened due to over-collection.**Figure 4.1327 (above)** *Schoenorchis fragrans* is not only blessed with beautiful, fragrant blooms, but also handsome foliage against which the numerous, dainty flowers are wonderfully offset (Grower: Cindy Hill).

SCHOENORCHIS

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, using little or no New Zealand *Sphagnum* moss around the roots. This species is rarely grown potted, but can be grown in tiny pots using a fine bark mix or possibly moss. *Temperature* warm-intermediate to intermediate. *Light* light shade. *Watering* water frequently, but ensure plant dries out briefly between waterings. Keep plants somewhat drier during winter. *Humidity* high. *Air movement* good to brisk. *Propagation* occasionally by division, or seed. *Fertilise* at 1/4 strength weekly, reduce frequency of fertiliser during the winter months.

Comments: *Schoenorchis fragrans* is, in the opinion of the authors, one of the most beautiful and wonderful of all miniature orchid species. A plant that is easy to obtain, relatively easy to grow and possessed of many desirable traits, it should be a consideration for any collector. The individual flowers are small, but grow in tight clusters of several to many, and sometimes the densely packed inflorescences are nearly as large as the plants themselves. The blooms are also faintly fragrant at times, and may last for up to 2 months, a source of great pleasure to the grower. The plants are also extremely attractive, with numerous, textured leaves of dark green above and purple beneath, growing in stacks and forming clumps with age. Plants from India are commonly sold as *S. manipurensis*, but that name is a mere synonym. It is also confused, understandably, with *S. seidenfadenii*, a species from Thailand. The plants are certainly indistinguishable out of bloom, but the paler flowers of the latter taxon differ in that the apex of the lip is upturned, while the sepals and petals often have a darker midvein. Flowering for both species generally occurs between mid-spring and late summer in cultivation, but occasionally plants will be seen blooming in early autumn.



Figure 4.1328 (above) A cluster of *Schoenorchis fragrans* flowers in detail. The congested inflorescence may bear flowers for up to two months, and the masses of little blooms can be almost as large as the plants that produce them (Grower: White Oak Orchids).

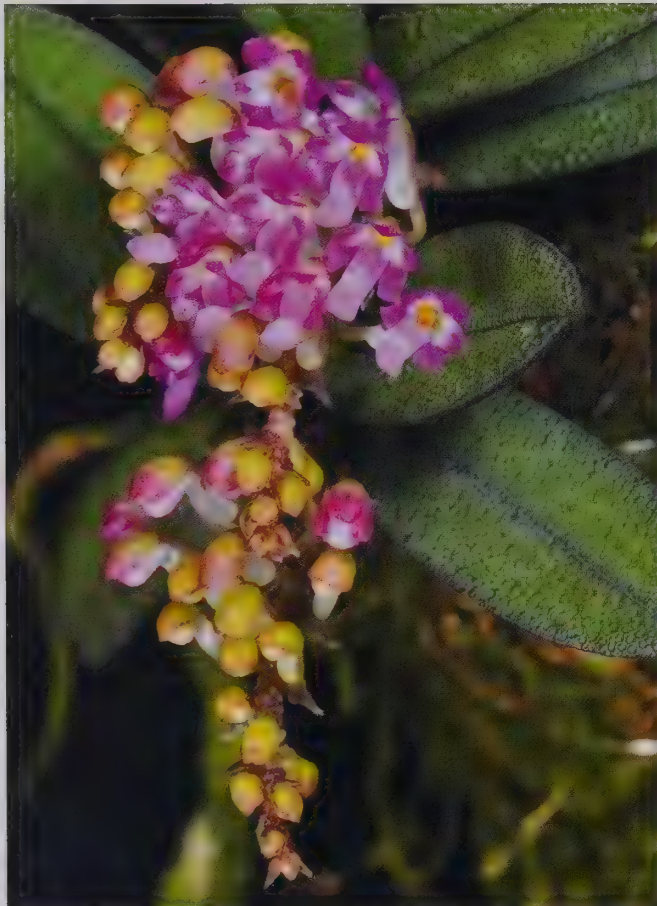


Figure 4.1329 (above) Flowers of *Schoenorchis fragrans* from China (Grower: Marni Turkel).

Figure 4.1330 (below) *Schoenorchis fragrans* from India (as *S. manipurensis*) (Grower: Marni Turkel).

Figure 4.1331 (above) *Schoenorchis fragrans* plants *in situ*, northwestern Vietnam (Photo: Leonid Averyanov).

Figure 4.1332 (below) A pair of flowering *Schoenorchis fragrans* plants on mounts (Grower: Cindy Hill).

SCHOENORCHIS

Schoenorchis scolopendria Aver.

Publication: *Orchids* 81: 367 (2012)

Etymology: Referring to the habit of the plant, resembling a small centipede hiding in bark folds on old trees. *Scolopendra* is a genus of centipedes in the family Scolopendridae.

Morphology: *Plant* 3–6 cm long, creeping, branched, adpressed to the bark of host tree, leaves distichous, imbricating at base, overlapping, many in number, roots short, thick, arising ventrally from leaf axils. *Leaf* 0.5–0.8 cm long by 0.2–0.3 cm wide, narrowly ovoid, apex acute to obtuse, lamina cordate in cross-section, thick, succulent, canaliculate dorsally, sometimes indistinctly keeled ventrally, green to purple-violet in colour. *Inflorescence* a raceme, 0.2–0.4 cm long, axillary. *Flower* to 0.4 cm tall, to 6 in number, simultaneous, resupinate, not spreading widely, crystalline in texture, lip with two thickened calluses on mid-lobe.

Habitat: To date, *Schoenorchis scolopendria* has only been found in the provinces of Thanh Hoa and Son La, northern Vietnam. It grows in the bark folds of old trees (favouring *Pistacia weinmanniifolia*) in primary and secondary broad-leaved, dry, evergreen forest at the top of rocky, limestone mountains from 550–900 m elevation. It is sometimes found growing with *Schoenorchis fragrans* (Leonid Averyanov, pers. comms., 2012) and flowers between April and June. *Schoenorchis scolopendria* is regarded as endangered.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, but probably not tree fern plaques, using little or no New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to its creeping, mat-forming habit. *Temperature* intermediate. *Light* light shade. *Watering* water frequently, but ensure plant dries out briefly between waterings. Reduce watering frequency during the winter. *Humidity* high. *Air movement* good to brisk. *Propagation* occasionally by division, or seed. *Fertilise* at 1/4 strength weekly, reduce fertiliser frequency during the winter months.

Comments: Although recently described, *Schoenorchis scolopendria* is rapidly gaining in popularity due to its enticing, unique form and its delightful, brightly coloured, crystalline flowers. To date, the plants seen in cultivation are likely wild-collected, and this species should quickly be propagated to prevent its extirpation in nature. The wonderful, overlapping leaves have a rugose texture, and it takes little imagination to see its resemblance to a centipede. Thus far the authors have only seen plants in bloom in mid- to late spring, but it is likely to bloom at other times of year in cultivation.

Figure 4.1335 (overleaf) *Schoenorchis scolopendria* flowers in detail, against a foil of fleshy, purple leaves (Grower: Cindy Hill).

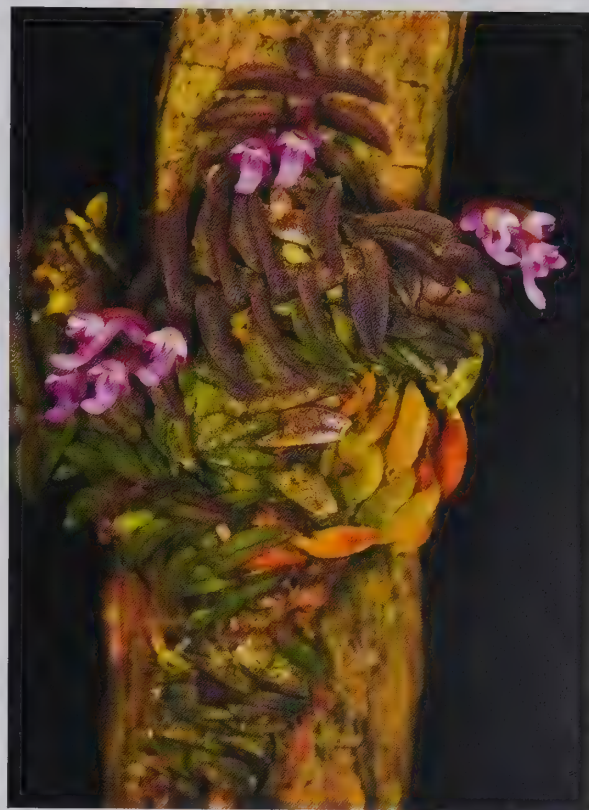


Figure 4.1333 (above) Attractive growths of *Schoenorchis scolopendria* (Grower: Cindy Hill).



Figure 4.1334 (above) *Schoenorchis scolopendria*, Son La Province, Vietnam (Photo: Leonid Averyanov).



SCHOENORCHIS

Schoenorchis seidenfadenii Pradhan

Publication: *Amer. Orchid Soc. Bull.* 47: 912 (1978)

Etymology: Named for Dr. Gunnar Seidenfaden (1908–2001), Danish born phytologist, collector and authority on the orchids of Thailand and Southeast Asia. He authored many articles on orchids and discovered this species.

Homotypic synonym: *Schoenorchis fragrans* var. *seidenfadenii* (Pradhan) M. Wolff & O. Gruss.

Morphology: *Plant* to 3 cm wide, stem to 2 cm tall, occasionally branched at base, leaves 3–10 in number. *Leaf* to 1.5 cm long by 0.5–0.9 cm wide, sessile, oblong-elliptic, apex rounded to obtuse, minutely unequally bilobed, lamina leathery, thick, rigid, dorsally papillose-rugose, often with dark purple pigment, ventrally reddish purple. *Inflorescence* a congested raceme, peduncle abbreviate, basically descending. *Flower* to 0.5 cm tall, to 20 or more in number, simultaneous, resupinate, spreading, crystalline in texture, apex of lip upturned, long-lasting. Flowers vary in degree of pink colouration, and in the width and colour intensity of the segment midline.

Range, elevation and habitat: *Schoenorchis seidenfadenii* occurs on Doi Suptep, a mountain in Chang Mai province, northeastern Thailand, at elevations of 800–1200 m. It grows as a lithophyte or epiphyte in seasonally wet, mixed montane forest. It flowers from late spring to early summer.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern plaques, using little or no New Zealand *Sphagnum* moss around the roots. This species is rarely grown potted, but it can be grown in tiny pots using an open, fast-draining fine bark mix or possibly moss, but the latter may stay too wet. *Temperature* warm-intermediate to intermediate. *Light* light shade. *Watering* water frequently, but ensure plants dry out briefly between waterings. Reduce watering frequency in winter. *Humidity* high. *Air movement* good to brisk. *Propagation* occasionally by division, or seed. *Fertilise* at 1/4 strength weekly, reduce fertiliser frequency during the winter months.

Comments: Plants of *Schoenorchis seidenfadenii* are indistinguishable from *S. fragrans* (q.v.) when not in bloom. However, the two species are easily distinguished when the tiny flowers are examined closely. The flowers of *S. seidenfadenii* have an upturned lip apex, resembling a “J” in profile (in contrast to the somewhat sigmoid profile of the lip of *S. fragrans*), and the sepals and petals usually have a darker midvein along their length, albeit one that is sometimes very faint. There is a rare albino form of *S. seidenfadenii* that has pure white flowers. This species flowers in mid-spring to late summer in cultivation.



Figure 4.1336 (above) The pretty flowers of *Schoenorchis seidenfadenii* have a distinct, upturned lip apex (Grower: White Oak Orchids).

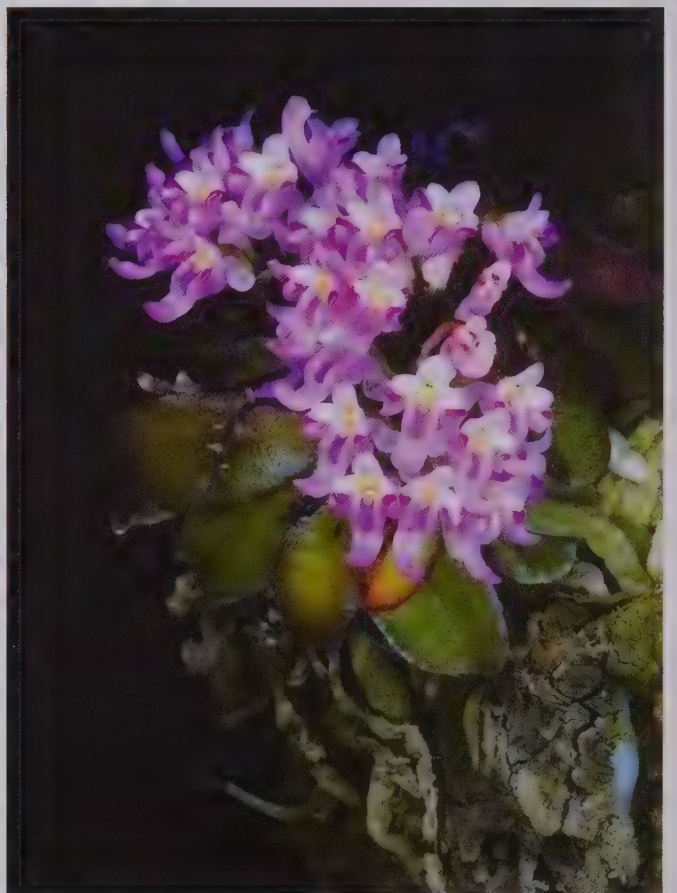


Figure 4.1337 (above) A pinkish form of *Schoenorchis seidenfadenii* in detail (Grower: White Oak Orchids).

Figure 4.1338 (below) A pale pink form of *Schoenorchis seidenfadenii* with faint, transverse barring (Grower: White Oak Orchids).

Figure 4.1339 (above) A whitish-lilac form of *Schoenorchis seidenfadenii* with strong barring (Grower: Mike Serpa).

Figure 4.1340 (below) A pink and white form of *Schoenorchis seidenfadenii* growing on a mount (Grower: Howard Gunn).



Figure 4.1341 (above) A white flowered form of *Schoenorchis seidenfadenii*, the leaves of the plant, which are apparent to the rear, are pale and lack the typical purplish colouration (Grower: Andy's Orchids).

Figure 4.1342 (below) A pink and pinkish-purple form of *Schoenorchis seidenfadenii* in bloom, the mass of flowers contrasting handsomely with its more darkly coloured leaves (Grower: Howard Gunn).

Specklinia Lindl.

Publication: Lindley, J., 1830, *Gen. Sp. Orchid. Pl.*: 8

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Specklinia grobyi* (Bateman ex Lindl.) F.Barros, 1983 (publ. 1984), *Hoehnea* 10: 110.

Etymology: This genus is named in honour of Veit Rudolph Speckle, who produced woodcuts for Leonhart Fuchs's famous herbal *De Historia Stirpium*, published in 1541. Fuchs is regarded as one of the three founding fathers of botany.

Heterotypic synonyms: *Acostaea* Schltr., *Empusella* (Luer) Luer, *Muscarella* Luer, *Pseudoctomeria* Kraenzl., *Sarcinula* Luer, *Sylphia* Luer, *Tribulago* Luer.

Profile: A large and widespread neotropical genus of over 120 sympodial, epiphytic, lithophytic or terrestrial species. Plants occur in moist lowland tropical forest to humid, wet cloud and elfin forest at elevations from near sea level to 3000 m. The range includes southern Mexico, Central America, the Caribbean islands, and South America as far south as Bolivia and southeastern Brazil.

General morphology: *Plant* usually small, clumping to repent, branching freely. *Ramicaul* abbreviated, erect, slender, enclosed by one or more tubular, imbricating sheaths. *Leaf* often petiolate, orbicular to obovate, apex acute to obtuse, usually erect, leathery. *Inflorescence* a raceme, rarely single flowered, sometimes flexuous.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots. These species can also be cultivated in small pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, with excellent drainage, not wet. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Specklinia*, are prone to infection with bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1343 (above) The miniature *Specklinia mentigera* comes from Brazil (Grower: Brad Cotten). **Figure 4.1344 (above)** An unidentified species of *Specklinia* from Costa Rica (Grower: Brad Cotten). **Figure 4.1345 (facing page)** A tiny *Specklinia* sp. covers its mount (Grower: Sherry Bridygham).



SPECKLINIA***Specklinia brighamii*** (S. Watson) Pridgeon & M. W. Chase**Publication:** *Lindleyana* 16: 256 (2001)

Etymology: Named in honour of William Tufts Brigham (1841–1926), an American geologist, botanist, and first director of the Bernice P. Bishop Museum in Honolulu. He was an acquaintance of Sereno Watson, who first described this species.

Homotypic synonyms: *Pleurothallis brighamii* S. Watson, *Sarcinula brighamii* (S. Watson) Luer.

Morphology: *Plant* 3–12 cm tall, clumping. *Ramicaul* 0.3–1 cm tall. *Leaf* 3–9 cm long by 0.6–1 cm wide, subpetiolate, oblanceolate to elliptic-oblong, apex obtuse to acute, lamina erect, leathery, glossy. *Inflorescence* a raceme, from congested fascicle, peduncle 2–8 cm in length, sub-erect. *Flower* 0.8–1.2 cm tall, singly successive, several to many in number resupinate, spreading, pedicels 0.3–0.7 cm long.

Range, elevation and habitat: *Specklinia brighamii* is a widespread species from southern Mexico (states of Chiapas, Oaxaca, Tabasco and Yucatan), Guatemala (departments of Alta Verapaz, Izabal and Petén), Belize (districts of Cayo and Toledo), Honduras (departments of Atlántida, Cortes and Yoro), Nicaragua (departments of Atlántico Norte, Estelí, Nueva Segovia, Río San Juan and Zelaya), Costa Rica (provinces of Heredia, Limón, Puntarenas and San José), Panama (provinces of Bocas del Toro, Canal Area, Chiriquí, Colón, Darién, Panamá and San Blas), Colombia (department of Valle del Cauca), Ecuador (province of Esmeraldas), Cuba, Haiti and Jamaica. This relatively common species is found at elevations from near sea level to 2400 m, and grows as an epiphyte on tree trunks, large branches and vines. It occurs in a variety of habitats, including coastal wet forest, rain forest, cloud forest and areas of seasonal rains, where it can flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* warm to cool, depending on plant provenance. If unknown, grow in intermediate conditions.

Comments: A charismatic species, *Specklinia brighamii* is common in cultivation, easy to grow under a variety of conditions and readily available. For a short period of time, this taxon was included in the genus *Sarcinula*, a group characterised by inflorescences that bloom from a congested point at the apex of the spike. This species is a good first plant for those wishing to cultivate pleurothallids. It can bloom at any time of year in cultivation.



Figure 4.1346 (above) The widespread *Specklinia brighamii* has modest, pretty blooms (Grower: J & L Orchids).



Figure 4.1347 (above) A more richly coloured *Specklinia brighamii* flower (Grower: J & L Orchids).

SPECKLINIA

Specklinia fimbriata (Ames & C.Schweinf.) Solano

Publication: *Icon. Orchid.* 5–6: t. 671 (2002 publ. 2003)

Etymology: From the Latin *fimbriatus* (fringed), referring to the fringed margin of the hairy flowers.

Homotypic synonyms: *Masdevallia fimbriata* Ames & C.Schweinf., *Muscarella fimbriata* (Ames & C.Schweinf.) Luer., *Pleurothallis setosa* C.Schweinf., *Specklinia setosa* (C.Schweinf.) Pridgeon & M.W.Chase, nom. superfl.

Morphology: *Plant* 1.2–4.8 cm tall, clumping. *Ramicaul* 0.3–0.5 cm tall. *Leaf* 2–2.8 cm long by 0.2 cm wide, subpetiolate, linear to linear-obovate, apex sub-acute to obtuse, thickly subtriangular in cross-section, thickly leathery. *Inflorescence* a raceme, to 9 cm long including peduncle, descending to pendent, lax, bristly, fractiflex, borne laterally from the ramicaul. *Flower* 1–1.5 cm tall, single, resupinate, not spreading widely, thin textured, pedicels 0.4–0.5 cm long.

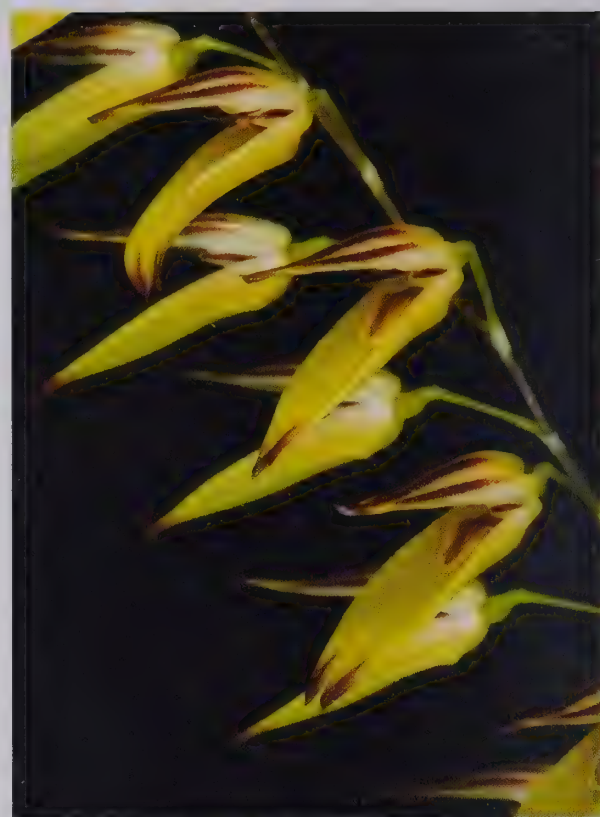
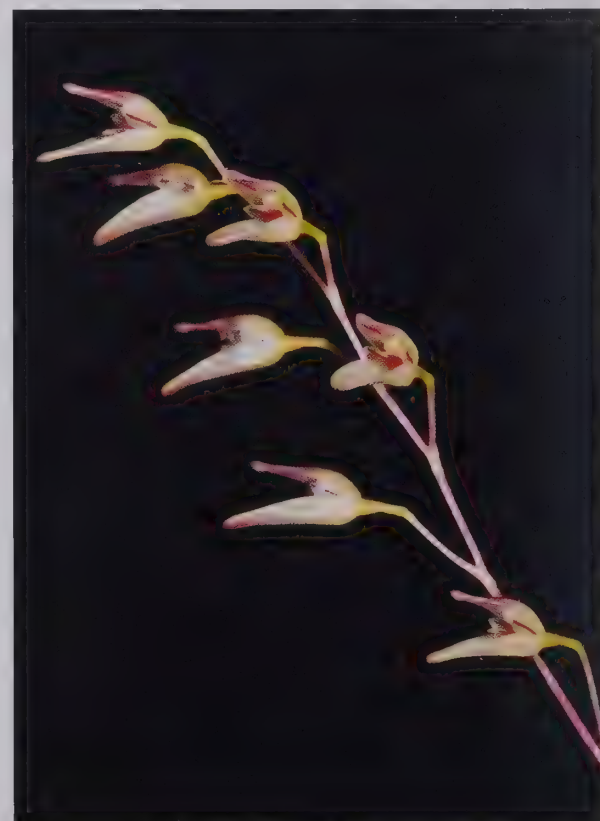
Range, elevation and habitat: *Specklinia fimbriata* is a widespread, but uncommon species from Mexico (states of Chiapas, Oaxaca and Veracruz), Guatemala, Belize (districts of Cayo and Stann Creek), Honduras (department of Atlántida) and Costa Rica (provinces of Cartago, Limón and Puntarenas). It occurs at elevations between 50 and 1900 m. It grows as an epiphyte in a variety of habitats ranging from low elevation tropical forest to cool, moist, montane forest. Though documented to bloom in December, it is likely that this species can flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate-cool, depending on plant provenance. If unknown, grow in intermediate conditions. This species can be grown in pots, but plants are much more attractive when grown on a mount because of their long, pendent spikes.

Comments: *Specklinia fimbriata* is a charming collector's item, though not seen in many collections. Another former member of the genus *Muscarella*, it has bristly flowers that are not star-shaped like those of many of its close relatives, having somewhat cup-shaped flowers with short sepaline tails. The inflorescences are very thin and relatively long, but the authors have seen it growing on a mount as well as in pots. It is an adaptable species that can be grown in a variety of temperature conditions. This species may flower at any time of year in cultivation.



Figure 4.1348 (above) The bristly, cup-shaped flower of *Specklinia fimbriata* differs from those of its near relatives (Grower: J & L Orchids).

SPECKLINIA***Specklinia grobyi*** (Bateman ex Lindl.) F.Barros**Publication:** *Hoehnea* 10: 110 (1983, publ. 1984)**Etymology:** Named after Lord Grey of Groby, England, who cultivated plants imported by Bateman.**Homotypic synonyms:** *Humboltia grobyi* (Bateman ex Lindl.) Kuntze, *Pleurothallis grobyi* Bateman ex Lindl.**Heterotypic synonyms:** *Humboltia crepidophylla* (Rchb.f.) Kuntze, *Humboltia marginalis* (Rchb.f.) Kuntze, *Humboltia trilineata* (Barb.Rodr.) Kuntze, *Lepanthes marmorata* Barb.Rodr., *Lepanthes trilineata* (Barb.Rodr.) Barb.Rodr., *Pabstiella ezechiasi* (Hoehne) Luer, *Pleurothallis barbosae* Schltr., *Pleurothallis biglandulosa* Schltr., *Pleurothallis choconiana* S.Watson, *Pleurothallis crepidophylla* Rchb.f., *Pleurothallis ezechiasi* Hoehne, *Pleurothallis grobyi* var. *marmorata* (Barb.Rodr.) Garay, *Pleurothallis grobyi* var. *trilineata* (Barb.Rodr.) Cogn., *Pleurothallis marginalis* Rchb.f., *Pleurothallis marmorata* (Barb.Rodr.) Cogn., *Pleurothallis marmorata* var. *concolor* Cogn., *Pleurothallis pergracilis* Rolfe, *Pleurothallis perplexa* Rchb.f., *Pleurothallis trilineata* Barb. Rodr., *Specklinia biglandulosa* (Schltr.) Pridgeon & M.W.Chase, *Specklinia ezechiasi* (Hoehne) Luer, *Specklinia marginalis* (Rchb.f.) F.Barros.**Morphology:** Plant 2.2–7 cm, clumping. Ramicaul 0.2–1 cm tall. Leaf 2–5 cm long by 0.5–1.5 cm wide, petiolate (0.5–2 cm), narrowly elliptical to narrowly obovate, apex sub-acute to obtuse, lamina sometimes suffused with purple. Inflorescence a semi-congested raceme, 3–15 cm in length, erect to sub-erect, more or less flexuous, flowers distichous, peduncle borne from a node on the ramicaul. Flower 0.3–0.7 cm long, 6–25 in number, usually simultaneous, resupinate, not spreading widely.**Range, elevation and habitat:** This species is extremely widespread and common, with hundreds of recorded collections over a wide range of elevations from sea level to 3000 m. It is known from Mexico (states of Chiapas, Quintana Roo and Veracruz), Guatemala (departments of Alta Verapaz, Izabal and Petén), Belize (districts of Orange Walk, Stann Creek and Toledo), Honduras (departments of Atlántida and Gracias a Dios), El Salvador (departments of Ahuachapán and Morazán), Nicaragua (departments of Atlántico Norte, Atlántico Sur, Chontales, Estelí, Jinotega, Río San Juan and Zelaya), Costa Rica (provinces of Alajuela, Heredia, Limón and Puntarenas), Panama (provinces of Bocas de Toro, Canal Area, Chiriquí, Colón, Panamá and Veraguas), Colombia (departments of Amazonas, Caquetá, Chocó, Meta and Valle del Cauca), Ecuador (provinces of Azuay, Cotopaxi, El Oro, Esmeraldas, Loja, Morona-Santiago, Pastaza, Pichincha, Sucumbíos and Tungurahua), Peru (departments of Amazonas, Cajamarca and San Martín), Bolivia (departments of Cochabamba, La Paz and Santa Cruz), Venezuela (states of Amazonas and Bolívar), Guyana, Suriname, French Guiana, Brazil (states of Roraima, Amapá, Amazonas, Bahia, Minas Gerais, Espírito Santo, São Paulo, Rio de Janeiro, Paraná,**Figure 4.1349 (above)** *Specklinia grobyi* is a variable, but stunning species when in bloom (Grower: Pamela Leaver).**Figure 4.1350 (above)** Another form of *Specklinia grobyi* with more reddish colouration (Grower: Brad Cotten).

SPECKLINIA

Santa Catarina and Rio Grande do Sul), Argentina (province of Misiones) and possibly Cuba and Hispaniola. Luer (2006) suggests that some of the Caribbean collections may be confused with both *Specklinia picta* (Lindl.) Pridgeon & M. Chase and *S. grisebachiana* (Cogn.) Luer.

Culture recommendations: See general notes for the genus. *Temperature* warm to cold, depending on plant provenance. If unknown, grow in intermediate conditions.

Comments: Given its incredibly variable nature, *Specklinia grobyi* has more synonyms than most orchids. It is one of the most easily obtainable and adaptable species of pleurothallid, and its charm has secured it a place in many orchid collections. The plant easily grows to specimen proportions, and is a stunning sight when blooming en masse. *Specklinia grobyi* seems to merge into *S. picta* via intermediate forms, with both sharing many common features, though *S. grobyi* tends to have yellow flowers with a striped dorsal sepal. However, there is no one characteristic that reliably separates these two taxa. An interesting feature in some clones of *S. grobyi* is the nearly prostrate, thick, succulent and most attractive juvenile foliage, which is eventually replaced by the larger, typical mature leaves. This species may flower at any time of year.



Figure 4.1351 (above) In bright light, the leaves of *Specklinia grobyi* become heavily pigmented (Grower: Lilian Severin).



Figure 4.1352 (above) A *Specklinia grobyi* specimen plant growing in a hanging basket (Grower: Howard Gunn).



Figure 4.1353 (above) *Specklinia picta* 'Fox Den' has wonderful flowers of vibrant yellow (Grower: Marni Turkel).

Figure 4.1354 (overleaf) The inflorescence of a spectacular *Specklinia picta* form with red flowers (Grower: Hanging Gardens).



SPECKLINIA

Specklinia lanceola (Sw.) Lindl.

Publication: *Gen. Sp. Orchid. Pl.*: 8 (1830)

Etymology: From the Latin *lanceolus* (lance-like), referring to the shape of the leaf.

Homotypic synonyms: *Dendrobium lanceola* (Sw.) Sw., *Epidendrum lanceola* Sw., *Humboltia lanceola* (Sw.) Kuntze, *Pleurothallis lanceola* (Sw.) Spreng.

Heterotypic synonyms: *Humboltia lateritia* (Rchb.f.) Kuntze, *Pleurothallis lateritia* Rchb.f., *Pleurothallis sclarea* Rchb.f., *Specklinia lateritia* (Rchb.f.) Pridgeon & M.W.Chase, *Specklinia sclarea* (Rchb.f.) Pridgeon & M.W.Chase.

Morphology: *Plant* 3–4.5 cm tall, clumping. *Ramicaul* 0.4–0.6 cm tall. *Leaf* 2–3 cm long by 0.4–0.7 cm wide, cuneate at base into ill-defined petiole 0.5–1 cm long, narrowly obovate, apex obtuse. *Inflorescence* a raceme, 2.5–5 cm long including peduncle, erect to sub-erect, emerging laterally from ramicaul. *Flower* 0.5–0.7 cm long, 2–4 in number, simultaneous, resupinate, barely spreading, pedicels 0.5–0.7 cm long.

Range, elevation and habitat: *Specklinia lanceola* has an unusual distribution, having been found in Mexico (states of Chiapas and Veracruz), Costa Rica (provinces of Heredia and San José) and Jamaica at elevations between 600 and 1750 m. It grows as an epiphyte in low to mid-elevation wet montane forest. This species is considered uncommon in Jamaica, but is more frequent in other parts of its range. Flowering may occur at any time year.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: The eye-catching, brilliant orange flowers are a trademark of *Specklinia lanceola*, but it is not often seen in cultivation. It is not difficult to grow and is generally available when looked for. Some individuals have larger or more brilliantly coloured blooms, but all are worth growing. A well-flowered specimen produces a wonderful display, and the fine flowers make this species one of the most desirable species in the genus. Flowers tend to appear in autumn in cultivation, but they may appear at other times.



Figure 4.1355 (above) The brilliant, reddish-orange flowers of *Specklinia lanceola* (Grower: J & L Orchids).



Figure 4.1356 (above) *Specklinia lanceola* blooms show some variation in orange colouration (Grower: J & L Orchids).

SPECKLINIA***Specklinia macroblepharis*** (Rchb.f.) Pridgeon & M.W.Chase**Publication:** *Lindleyana* 16: 258 (2001)**Etymology:** From the Greek *macro* (large) and *blepharis* (eyelash), referring to the long ciliate petals.**Homotypic synonyms:** *Pleurothallis macroblepharis* Rchb.f., *Muscarella macroblepharis* (Rchb.f.) Luer.**Heterotypic synonyms:** *Masdevallia culex* Rchb.f., *Masdevallia pulex* Rchb.f.**Morphology:** *Plant* 2.5–5.5 cm, clumping. *Ramicaul* 0.5–0.8 cm tall. *Leaf* 2–4.5 cm long including petiole, by 0.5–0.7 cm wide, narrowly cuneate into petiole, narrowly obovate, apex sub-acute to obtuse. *Inflorescence* a loose raceme, to 15 cm long including peduncle, descending to pendent, subflexuous, arising from ramicaul. *Flower* 2–2.5 cm tall, few to several in number, singly successive, resupinate, widely spreading, thin-textured, pedicels to 0.6 cm long.**Range, elevation and habitat:** *Specklinia macroblepharis* is a relatively common species with a fairly wide distribution. It ranges from the central Cordillera of Colombia (departments of Antioquia, Chocó, Cauca and Risaralda) through Ecuador (provinces of Carchi, Cotopaxi, Imbabura, El Oro, Loja and Zamora-Chinchipe) into northern Peru (department of Piura). It grows epiphytically in rainforest, wet forest, cloud forest and even seasonally dry forest at elevations of 900–2500 m. This species may flower at any time of year.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to cool. This species can be cultivated in pots, but its long, descending spikes are much more attractive when grown on a mount.**Comments:** A wonderful, seemingly ever-blooming plant, *Specklinia macroblepharis* has proportionately large, striped flowers that are semi-translucent with a crystalline texture. This is yet another species that was once included in the genus *Muscarella*, a particularly attractive group of pleurothallids. This species can bloom at any time of year in cultivation.**Figure 4.1357 (above)** *Specklinia macroblepharis* has relatively large, striking flowers (Grower: John Leathers).**Figure 4.1358 (above)** The flowers of *Specklinia macroblepharis* have long, striped petals (Grower: John Leathers).

SPECKLINIA

Specklinia megalops (Luer) Pridgeon & M. W. Chase

Publication: *Lindleyana* 16: 258 (2001)

Etymology: From the Greek *megalo* (large) and *ops* (eye), referring to the proportionately large, round lip.

Homotypic synonyms: *Muscarella megalops* (Luer) Luer, *Pleurothallis megalops* Luer.

Morphology: Plant 3.5–5.5 cm tall, clumping. *Ramicaul* 0.5–1 cm tall. *Leaf* 3–4.5 cm long, including petiole, by 0.7–0.9 cm wide, narrowly cuneate into petiole, narrowly obovate, apex sub-acute to obtuse. *Inflorescence* a loose raceme, to 18 cm long including peduncle, subflexuous, flexible, descending to pendent, arising from ramicaul. *Flower* 2.5–3.5 cm wide, few to several in number, singly successive, resupinate, spreading widely, thin-textured, lip relatively large.

Range, elevation and habitat: *Specklinia megalops* is an uncommon to rare species that appears to be restricted to southwestern Ecuador. It occurs in the provinces of Azuay, El Oro and Loja at elevations of 1600–2600 m. It grows as an epiphyte in moist to wet montane cloud forest and may flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-cool to cool. This species can be cultivated in pots, but is much more attractive when grown on a mount on account of its long, pendent spikes.

Comments: *Specklinia megalops* is an exciting species to grow, and its long, wiry, pendent spikes bear proportionately huge blooms. It has the largest flowers of any of those species included in the former genus *Muscarella*, and although not brilliantly coloured, the flowers are graceful and of an elegant shape. In addition, the plants flower frequently and bloom at any time of year. Plants look their best when grown on a mount, though *S. megalops* will certainly grow well in pots.



Figure 4.1359 (above) A pair of *Specklinia megalops* blooms display their wonderful patterns (Grower: White Oak Orchids).

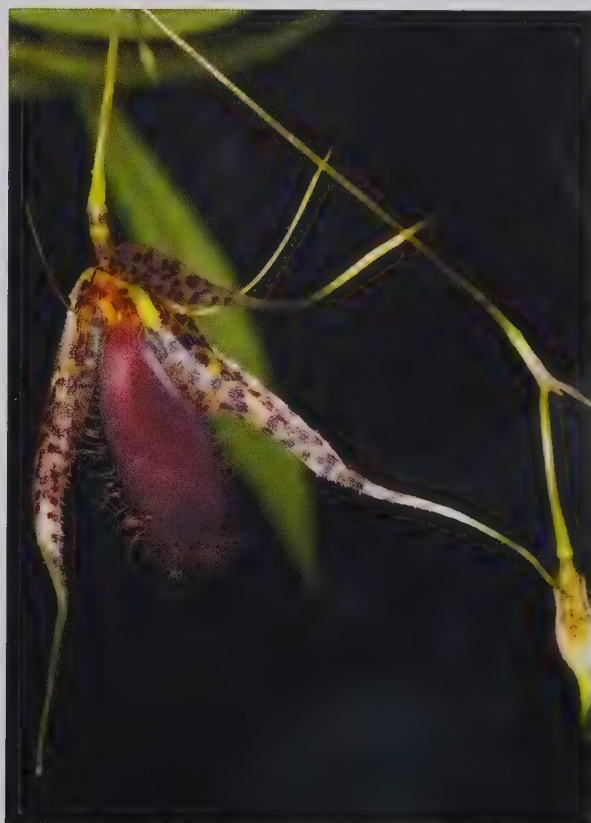


Figure 4.1360 (above) *Specklinia megalops* has the largest flowers in the genus (Grower: Hanging Gardens).

SPECKLINIA

Specklinia tribuloides (Sw.) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 259 (2001)

Etymology: From the Latin *tribulus* (caltrop, a three-pronged implement designed to impede cavalry movement), referring to the softly spiny ovary.

Homotypic synonyms: *Cryptophoranthus tribuloides* (Sw.) H.Dietr., *Cymbidium tribuloides* (Sw.) Spreng., *Dendrobium tribuloides* (Sw.) Sw., *Epidendrum tribuloides* Sw., *Humboltia tribuloides* (Sw.) Kuntze, *Pleurothallis tribuloides* (Sw.) Lindl., *Tribulago tribuloides* (Sw.) Luer.

Heterotypic synonyms: *Cryptophoranthus acaulis* Kraenzl., *Pleurothallis fallax* Rchb.f., *Pleurothallis spathulata* A.Rich. & Galeotti.

Morphology: Plant 4.5–8.5 cm, clumping tall. *Ramicaul* 1–1.5 cm tall, stout. *Leaf* 3–7 cm long by 0.5–1.5 cm wide, subpetiolate, obovate to oblanceolate to narrowly elliptical, apex sub-acute to narrowly obtuse. *Inflorescence* a congested raceme, extremely abbreviated, to 1 cm in length including peduncle, blooms repeatedly from fascicle, borne laterally from the ramicaul. *Flower* 0.6–0.8 cm wide, 2 to 3 in number, successive, resupinate, pedicels 0.5 cm long.

Range, elevation and habitat: A widespread and common species, *Specklinia tribuloides* occurs in Mexico (states of Chiapas, Oaxaca and Veracruz), Guatemala (department of Izabal), Nicaragua (departments of Grenada and Zelaya), Costa Rica (provinces of Cartago, Guanacaste, Puntarenas and San José) and Panama (province of Chiriquí), with disjunct populations in Cuba, Haiti, Jamaica, Suriname and Brazil (state of Pará) at elevations of 15–2250 m. *Specklinia tribuloides* grows epiphytically in very humid, tropical deciduous forest, rainforest and montane cloud forest. It tends to bloom in spring and summer in nature, but may flower at any time.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate-cool.

Comments: One of the more common pleurothallids in collections, *Specklinia tribuloides* has the nickname “lobster claws”. The bumpy, brilliant orange flowers clustered at the bases of the leaves are certainly reminiscent of the appendages of that crustacean. *Specklinia tribuloides* is easy to grow, branches freely and proliferates into profusely flowering specimens that tend to bloom during spring and summer in cultivation, though some clones may flower at any time. The authors recommend this species for those with warm to intermediate growing conditions, but particularly to individuals who wish to try growing an easy pleurothallid.



Figure 4.1361 (above) *Specklinia tribuloides* has wonderful orange lobster-claw-like flowers (Grower: Mary Gerritsen).



Figure 4.1362 (above) A flowering *Specklinia tribuloides* growing epiphytically in nature (Photo: Gary Yong Gee).

Figure 4.1363 (facing page) The bumpy blooms of *Specklinia tribuloides* in detail (Grower: Mary Gerritsen).



Stelis Sw.

Publication: Swartz, O. P., 1799, *J. Bot. (Schrader)* 2: 239, nom. cons

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Stelis ophioglossoides* (Jacq.) Sw., 1799, *J. Bot. (Schrader)* 2: 239.

Etymology: From the Greek *stelis* (small pillar). Theophrastus, successor to Aristotle and ‘father of botany’, used this term to describe a type of mistletoe. In the case of this genus, it is thought to refer to the epiphytic habit of many of the species.

Heterotypic synonyms: *Apatostelis* Garay, nom. illeg., *Condylago* Luer, *Crocodeilanth* Rchb.f. & Warsz., *Dialissa* Lindl., *Dracontia* (Luer) Luer, *Effusiella* Luer, *Elongatia* (Luer) Luer, *Humboltia* Ruiz & Pav., nom. rej., *Loddigesia* Luer, *Lomax* Luer, *Mystacorchis* Szlach. & Marg., *Niphantha* Luer, *Physosiphon* Lindl., *Physothallis* Garay, *Pseudostelis* Schltr., *Salpistele* Dressler, *Steliopsis* Brieger, *Unciferia* (Luer) Luer.

Profile: *Stelis* is a very large orchid genus of more than 700 species, and it is expected to grow as there are many undescribed species. Plants in this genus may be epiphytic, lithophytic or terrestrial, occurring from various lowland habitats to high elevation cloud forest and páramo at elevations near sea level to 4000 m. They are known from southwestern Florida, the Lesser Antilles and Mexico through Central America and South America as far south as Bolivia and Brazil.

General morphology: *Plant* tiny to large, clumping to repent, usually erect, much branching. *Ramicaul* slender in relation to leaf, usually erect, enclosed in sheaths. *Leaf* elliptical to oblong, erect to spreading, leathery. *Inflorescence* a raceme, terete, slender, flowers distichous, emerging from ramicaul, sometimes arising from a conspicuous spathe. *Flower* few to many in number, usually simultaneous, usually resupinate, sepals ovate to triangular, variously connate, prominent, sometimes pubescent or villous, petals and lip proportionately small, lip with rounded callus (glenion) at base below column, segments membranous, subsimilar, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or tree fern, using New Zealand *Sphagnum* moss around the roots, or in pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, with excellent drainage. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Stelis*, are prone to bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1364 (above) The translucent flowers of an unidentified miniature species of *Stelis* (Grower: Marni Turkel).

STELIS

Stelis cymbisepala Pridgeon & M.W.Chase

Publication: *Lindleyana* 17: 98 (2002)

Etymology: From the Greek *cymbi* (boat-shaped) and *sepalum* (sepal), referring to the shape of the dorsal sepal and synsepal.

Homotypic synonyms: *Salpistele dressleri* Luer, *Stelis dressleri* (Luer) Pridgeon & M.W.Chase, nom. illeg.

Morphology: *Plant* 3–4.5 cm tall, clumping, erect. *Ramicaul* 1.2–1.5 cm tall, erect. *Leaf* 2–2.8 cm long (including petiole) by 0.6–0.8 cm wide, petiolate, elliptical, apex acute to sub-acute, lamina erect, leathery. *Inflorescence* a raceme, to 6 cm long including 1.5 cm peduncle, lax, flexuous, borne high on ramicaul. *Flower* to 1 cm tall, successive, several in number, lateral sepals connate forming synsepal.

Range, elevation and habitat: *Stelis cymbisepala* is thought to be endemic to western Panama, near Fortuna, province of Chiriquí, at an elevation of 1300 m. The type specimen was collected with *S. maculata*, a closely related taxon found growing on the same tree, both species in deep moss. The plants were found low on the trunks of large trees in primary wet forest. This species may flower at any time. No information on its conservation status could be found, but such narrow endemics are always of concern.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: Quite rare in cultivation, *Stelis cymbisepala* was originally described as *Salpistele dressleri*, a member of a small genus that has since been subsumed into the mega-genus *Stelis* along with several other well-known genera. These transfers have not been accepted by all. Indeed, this species is florally atypical amongst *Stelis*, and it is uncertain that this placement will stand unchallenged. *Stelis cymbisepala* may flower at any time of year in cultivation, and a mature plant may nearly always be in flower.



Figure 4.1365 (above) The diminutive flower of *Stelis cymbisepala* is quite distinct (Grower: J & L Orchids).



Figure 4.1366 (above) *Stelis cymbisepala* is named after the boat-like shape of its sepals (Grower: J & L Orchids).

STELIS

Stelis cypripedioides (Luer) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 262 (2001)

Etymology: Like a *Cypripedium* (a genus of slipper orchids), referring to the pouch-like synsepal.

Homotypic synonyms: *Effusiella cypripedioides* (Luer) Luer, *Pleurothallis cypripedioides* Luer, *Specklinia cypripedioides* (Luer) Luer.

Morphology: *Plant* 3.5–8.5 cm tall, clumping, erect. *Ramicauls* 0.8–1.8 cm, slender, erect. *Leaf* 3–7 cm long (including petiole) by 1.4–1.8 cm wide, obovate to elliptical, apex sub-acute, lamina erect. *Inflorescence* several to many simultaneous racemes, to 30 cm long including peduncle, filiform, lax, pendulous, flexuous, loosely distichous, elongating between flowers, from annulus below apex of ramicaul. *Flower* to 1 cm long, successive, occasionally more than one flower open, resupinate, pedicels 0.4–0.8 cm long, not spreading widely, lateral sepals connate to form cup-like synsepal, nodding.

Range, elevation and habitat: *Stelis cypripedioides* is apparently endemic to the eastern slopes of the Andes Mountains in Ecuador (provinces of Morona-Santiago, Napo and Zamora-Chinchipec) at elevations of 350–1600 m. It is found in moist to wet, lower montane forest and mid-elevation cloud forest. No confirmed bloom-time records could be found, but this species is likely to flower at any time of year, as in cultivation. No conservation status information could be found.

Culture recommendations: See general notes for the genus. *Temperature* warm-intermediate to intermediate-cool.

Comments: An outstanding species, *Stelis cypripedioides* has incredibly charming little flowers that resemble fuzzy moccasins. The specific epithet refers to the similarity of this species to lady-slipper orchids, although the “pouch” of *S. cypripedioides* is formed by the synsepal, versus the lip as in *Cypripedium*. Nearly continuously formed, the blossoms are borne on dangling, thread-like spikes, and look most attractive when the plants are grown on a mount. This species has seen a series of generic name changes. Interestingly, it was described as having a synsepal with purple hairs, not white, and it is possible that all plants in collections are incorrectly named. A number of species have similar flowers, including *S. trichostoma* (Luer) Pridgeon & M.W.Chase and *Pleurothallis ximenae* Luer (currently an unplaced name). The flowers of the former are smaller and lined with purple hairs, possibly representing the true *S. cypripedioides*, and the blooms of the latter are of a similar size to *S. cypripedioides*, but creamy yellow in colour, sometimes suffused with purplish, and the exterior of the synsepal somewhat bristly. All three species are certainly worth adding to any collection though only *S. cypripedioides* is available with any regularity.



Figure 4.1367 (above) The flower of *Stelis cypripedioides* is certainly reminiscent of *Cypripedium* (Grower: Howard Gunn).



Figure 4.1368 (above) *Stelis cypripedioides* has wonderful, moccasin-like blooms (Grower: Howard Gunn).



Figure 4.1369 (above) A series of dangling *Stelis cyrtipedioides* flowers at various stages of maturity (Grower: Howard Gunn).

Figure 4.1370 (below left) The pendent inflorescence of *Pleurothallis ximenesae*, a species that is similar in appearance (Grower: Marni Turkel).

Figure 4.1371 (below right) The flower of *Pleurothallis ximenesae* in detail; note the bristly synsepal (Grower: Marni Turkel).

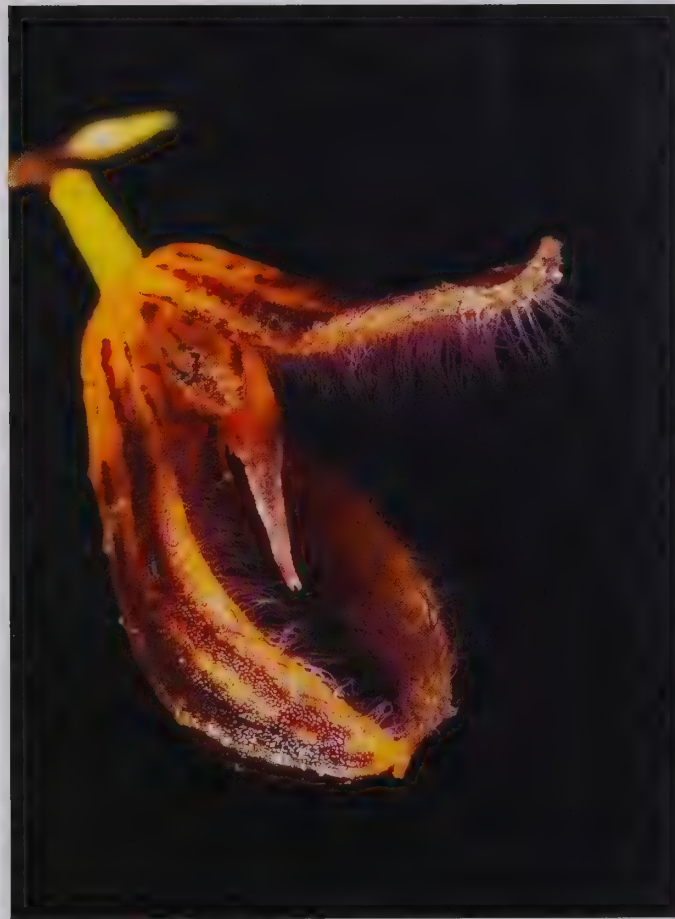


Figure 4.1372 (above) *Stelis* cf. *trichostoma* (Grower: Marni Turkel).
Figure 4.1373 (below) *Stelis* cf. *trichostoma* (Grower: Marni Turkel).

Figure 4.1374 (above) *Stelis* aff. *cyripedioides* (Grower: Judy Carney).
Figure 4.1375 (below) *Stelis* aff. *cyripedioides* (Grower: Marni Turkel).

STELIS***Stelis gemma* Garay****Publication:** *Orquideologia* 4: 77, fig. 1969**Etymology:** From the Latin *gemma* (jewel), referring to the appearance of the flowers.**Morphology:** *Plant* 5–9 cm long per growth, descending to pendent, clumping to shortly repent, rhizome elongating to 1 cm long between growths. *Ramicaul* 0.5–2.5 cm, pendent, slender, short, enclosed in several, somewhat inflated, whitish sheaths. *Leaf* 3–8 cm long by 1–2.5 cm wide, abruptly contracting into short petiole, broadly elliptical, apex rounded to obtuse, lamina leathery, glaucous blue-grey. *Inflorescence* racemic, 1–3 simultaneous, to 8.5 cm long including peduncle, pendent, lax, distichous, congested, emerging at apex of ramicaul. *Flower* 1.2–1.5 cm tall, successive, few to several in number, 1–2 flowers open simultaneously, spreading widely, creamy white with brown petals and lip, occasionally with reddish-brown suffusion at base of sepals, pedicels to 0.3 cm.**Range, elevation and habitat:** *Stelis gemma* occurs in Colombia (department of Antioquia), Ecuador (provinces of Loja, Napa, Tungurahua and Zamora-Chinchipe) and Peru (department of Huánuco), at elevations from 800–2000 m. It grows on the erect, mossy trunks of large trees in humid, mixed montane forest. No bloom-time records could be found. No information on conservation status was available.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to intermediate-cool. This species must be grown mounted due to the pendent nature of the plant inflorescences.**Comments:** Most species of the large genus *Stelis* are underappreciated and some are even regarded as weedy, but that cannot be said of *S. gemma*. Certainly one of the most distinctive and attractive taxa within the genus, it is most extraordinary in having a graceful, pendent habit and absolutely beautiful, glaucous grey-green leaves that are broad and flat with a rounded apex. A minor drawback of this free flowering species is that the inflorescences can be hidden by the foliage. The triangular, ivory white flowers are softly, shortly pubescent, and offset nicely by the tiny, reddish-brown petals and lip, although in some individuals this colouration may extend into the base of the sepals. For a brief period, plants of the latter form were sold under the invalid name *S. villenae*. *Stelis gemma* typically blooms between mid-autumn and winter in cultivation, but it is possible that plants may also flower at other times.**Figure 4.1378 (overleaf)** A *Stelis gemma* flower in detail; the white sepals are offset attractively by the brownish red pigmentation towards the centre (Grower: J & L Orchids).**Figure 4.1376 (above)** *Stelis gemma* is an extremely elegant taxon with ivory white flowers (Grower: Ron Parsons).**Figure 4.1377 (above)** The glaucous leaves of *Stelis gemma* are attractive in their own right (Grower: Ron Parsons).



STELIS

Stelis janetiae (Luer) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 264 (2001)

Etymology: Named in honour of Janet Kuhn of Easton, Connecticut, one of the original proprietors of J & L Orchids, who collected and cultivated this species.

Homotypic synonyms: *Elongatia janetiae* (Luer) Luer, *Pleurothallis janetiae* Luer.

Morphology: *Plant* 6.5–12.5 cm, clumping, erect. *Ramicaul* 1.5–2.5 cm, erect, purple. *Leaf* 5–10 cm long (including petiole) by 1.4–2.3 cm wide, elliptical-ovate, apex sub-acute to obtuse, lamina erect to sub-erect. *Inflorescence* a raceme, 8–15 cm long including peduncle, filiform, terete, sub-erect to pendent, elongating between flowers, emerging from spathe. *Flower* to 2 cm tall, singly successive, few (2–3) in number, resupinate, spreading, somewhat nodding, narrow, pedicels 1–1.2 cm long.

Range, elevation and habitat: A species endemic to northern Costa Rica, *Stelis janetiae* has been collected in the provinces of Alajuela and Puntarenas, at elevations of 500–1200 m, where it grows epiphytically in cloud forest. This species may flower at any time. No conservation status information could be found.

Culture recommendations: See general notes for the genus. *Temperature* warm-intermediate to intermediate.

Comments: *Stelis janetiae* is occasionally seen in collections, but usually under the name *Pleurothallis janetiae*. Although not a true *Pleurothallis*, many feel that this and its relatives (formerly of genus *Elongatia*) do not belong in *Stelis*. The handsome, intriguing flowers nod from wiry, arching to pendent spikes; the blooms are compressed laterally, giving it a frontally narrow appearance, a trait shared with its closest relatives. This species may flower at any time in cultivation.

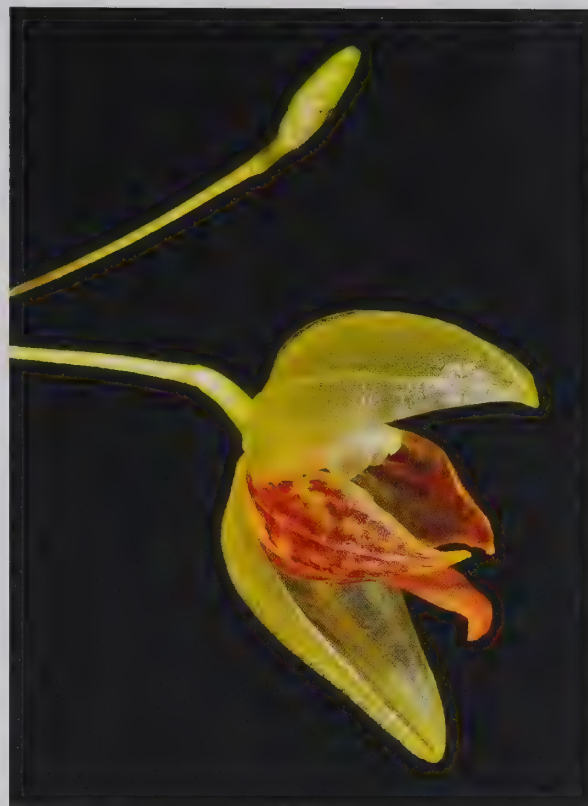


Figure 4.1379 (above) The intriguing flower of *Stelis janetiae* is produced from a wiry peduncle (Grower: Marni Turkel).

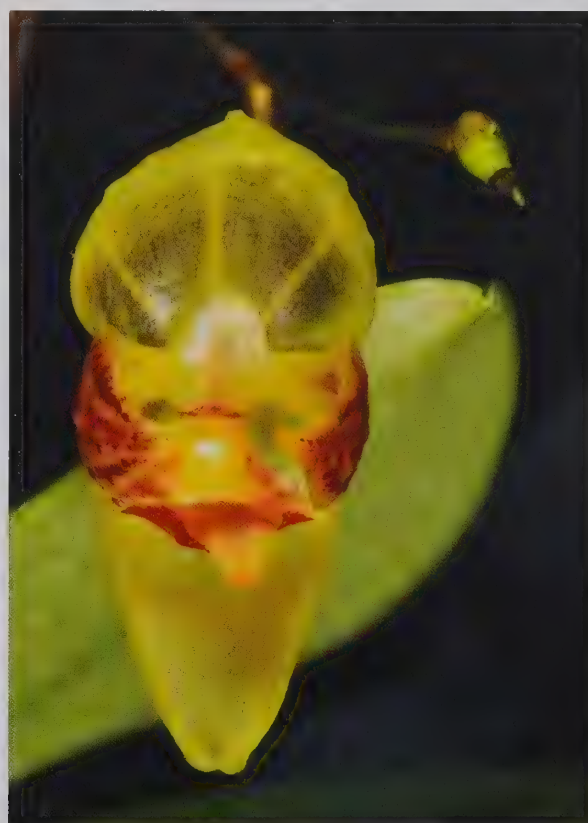


Figure 4.1380 (above) *Stelis janetiae* flowers appear somewhat narrow from the front (Grower: Marni Turkel).

STELIS

Stelis maculata Pridgeon & M.W.Chase

Publication: *Lindleyana* 17: 99 (2002)

Etymology: From the Latin *maculata* (spotted or blotched).

Homotypic synonyms: *Salpistele lutea* Dressler, *Stelis lutea* (Dressler) Pridgeon & M.W.Chase, nom. illeg.

Morphology: *Plant* 1.5–3 cm tall, clumping, erect. *Ramicaul* 0.5–1 cm tall, erect. *Leaf* 0.8–2 cm long by 0.4–0.6 cm wide, minutely petiolate, elliptical, apex acute to sub-acute, lamina erect, faintly verrucose dorsally. *Inflorescence* a raceme, to 4 cm long including short peduncle, flexuous, more or less creeping, emerging high on ramicaul. *Flower* 1–1.6 cm tall, successive, few to several flowers open simultaneously, resupinate, widely spreading.

Range, elevation and habitat: *Stelis maculata* is thought to be endemic to Panama in the provinces of Chiriquí and Coclé, growing in deep moss low on the trunks of large trees in wet, primary forest at elevations of approximately 1300 m. The forests in the type locality in Chiriquí have been cut since the original collection and the species can no longer be found there. In the type locality, *Stelis maculata* was found growing on the same trees as *Stelis cymbisepala*. Plants of this species can flower at any time of year. No conservation status information could be found, but it is likely that this is a rare taxon.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: In common with *Stelis cymbisepala*, with which this species was discovered, *S. maculata* was originally described as a *Salpistele*, a small genus that was subsumed into *Stelis*. As with the former species, *S. maculata* does not resemble a typical *Stelis*. Rare in cultivation, this species is only seen in a few collections. The striking, yellow and brown flowers have a proportionately large dorsal sepal, a smaller synsepal and rather large, narrow, outward extending petals. This species is frequently in flower, and a large, mature plant is almost never without some blooms.



Figure 4.1381 (above) *Stelis maculata* is a Panamanian taxon with striking red and brown blooms (Grower: J & L Orchids).

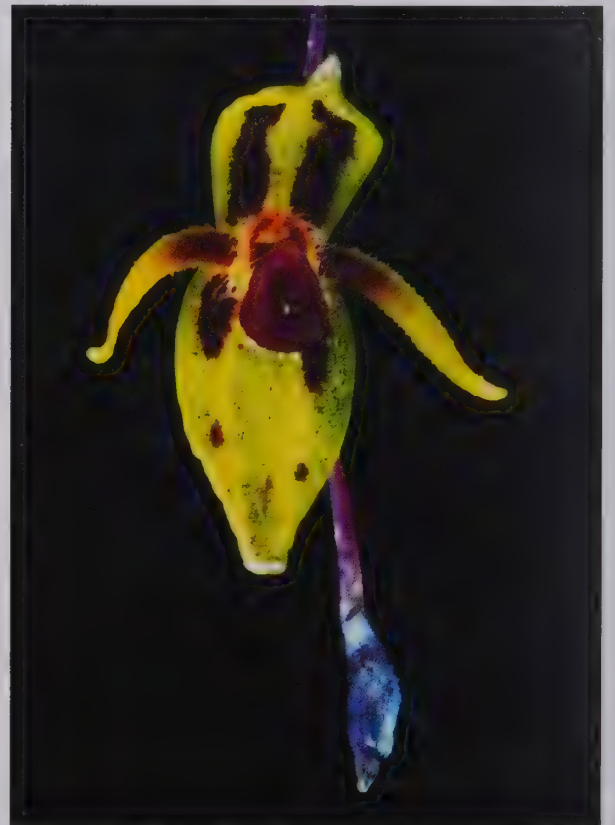


Figure 4.1382 (above) *Stelis brunnea* is another species transferred from the genus *Salpistele* (Grower: Howard Gunn).

STELIS

Stelis microchila Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 9: 289 (1911)

Etymology: From the Greek *micro* (minute) and *cheilos* (lip), referring to the small lip.

Heterotypic synonyms: *Stelis barbata* Rolfe, *Stelis bryophila* Schltr., *Stelis cinerea* Schltr., *Stelis costaricensis* Schltr., nom. illeg.

Morphology: *Plant* 2.5–5 cm, clumping, erect. *Ramical* 0.4–0.8 cm tall, erect. *Leaf* 2–4 cm long by 0.5–1.2 cm wide, petiolate, elliptic-obovate, apex sub-acute to obtuse, lamina erect. *Inflorescence* a congested raceme, 5–8 cm in length including peduncle, slender, sub-erect to spreading, flowers distichous, secund, facing upward. *Flower* 0.3–0.5 cm tall, many in number, simultaneous, resupinate, pedicels minute. Flowers vary in colour from grey-green to grey-purple to purple-black.

Range, elevation and habitat: A widely distributed and common species, *Stelis microchila* occurs in Mexico (state of Chiapas), Guatemala (departments of Alta Verapaz, Baja Verapaz and Huehuetenango), El Salvador (department of Santa Ana), Costa Rica (provinces of Alajuela, Guanacaste, Heredia and San José) and Panama (provinces of Chiriqui, Coclé, Colón and Veraguas). It grows in wet tropical forest, rainforest and mid-elevation montane cloud forest at elevations of 180–2300 m. This species can flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* warm to cool. If unsure of plant provenance, grow in intermediate conditions.

Comments: *Stelis microchila*, better known under its synonym *S. barbata*, is one of the most choice miniatures among the true *Stelis*, and it is found in many miniature orchid collections. Although the tightly clustered, intricate flowers are tiny, they are densely fuzzy, arranged in two neat rows and face upwards towards the observer. This species is easy to obtain, presents no culture difficulties and may flower at any time of year.



Figure 4.1383 (above) *Stelis microchila* is a delightful species with a singular inflorescence of clustered, fuzzy flowers arranged in two neat, outward facing ranks (Grower: Marni Turkel).

Figure 4.1384 (overleaf) A pair of *Stelis microchila* inflorescences hang amongst accompanying foliage (Grower: Mary Gerritsen).



STELIS

Stelis mystax (Luer) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 264 (2001)

Etymology: From the Greek *mystax* (moustache), referring to the fancied similarity of the diverging lateral sepals to a moustache.

Homotypic synonyms: *Mystacorchis mystax* (Luer) Szlach. & Marg., *Pleurothallis mystax* Luer.

Morphology: Plant 2–5 cm tall, erect. *Ramicaul* 1–2.5 cm tall, ribbed. *Leaf* 1.6–3 cm long by 1.2–2.2 cm wide, sessile, broadly elliptical, apex obtuse, lamina folded at base, sub-erect to spreading, fleshy, rigid. *Inflorescence* a raceme, to 2.5 cm in length, inflorescence elongating between flowers from a filiform peduncle from spathe at base of dorsal surface of leaf. *Flower* 1.5–2 cm tall, proportionately large, two in number, singly successive, resupinate.

Range, elevation and habitat: A narrowly endemic, yet quite abundant species, *Stelis mystax* grows in the low mountains of the province of Veraguas in central Panama. *Stelis mystax* occurs at elevations of 650–750 m. It grows as an epiphyte in cloud forest near to the continental divide, and can flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: *Stelis mystax* is a unique species, resembling none of its relatives. For many years, this species was known as *Pleurothallis mystax*, and is likely to be labelled as such in most collections. The flowers, with their distinctive, handlebar moustaches, usually appear singly at the end of a thread-like spike that elongates between blooms. They are quite dark in colour, but the sepals have a contrasting light margin. Plants of *S. mystax* are also attractive, with bright green, shapely leaves. Most of the plants seen by the authors have been of the clone named 'Fox Den'. A desirable collector's item, this species is a must-have in any collection, and specimens may flower at any time of year in cultivation.



Figure 4.1385 (above) Leaves and flowers of the unique taxon *Stelis mystax*, clone 'J & L' is shown (Grower: J & L Orchids).

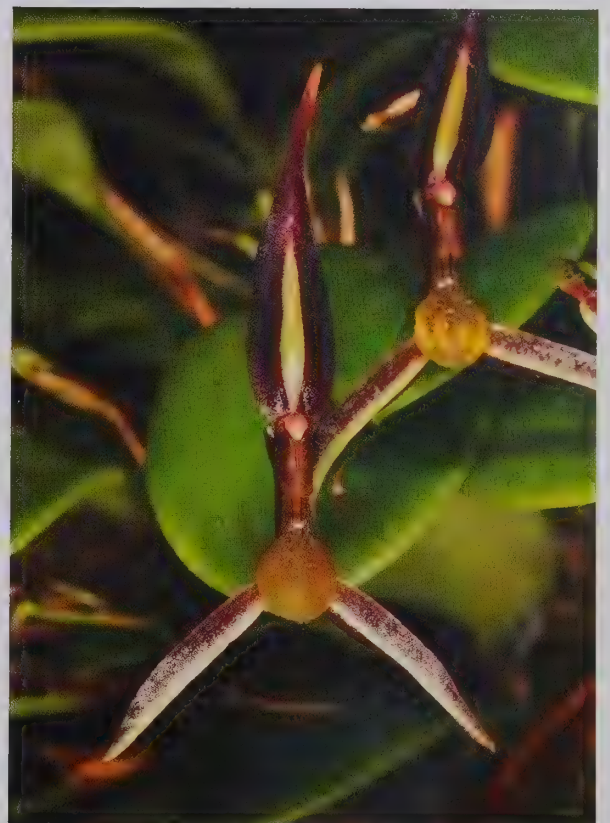


Figure 4.1386 (above) *Stelis mystax* 'J & L' demonstrating the moustache-like lateral sepals (Grower: J & L Orchids).

STELIS

Stelis ornata (Rchb.f.) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 265 (2001)

Etymology: From the Latin *ornatus* (ornate), referring to the fringes (paleae) of the sepals.

Homotypic synonyms: *Effusiella ornata* (Rchb.f.) Luer, *Pleurothallis ornata* Rchb.f., *Specklinia ornata* (Rchb.f.) Luer.

Morphology: *Plant* 2.5–5.5 cm tall, clumping, erect. *Ramicaul* 0.5–1.5 cm tall, erect. *Leaf* 2–4 cm long by 0.8–1.2 cm wide, sessile, elliptical, apex sub-acute to obtuse, lamina often spotted with purple ventrally. *Inflorescence* a raceme, 5–14 cm long including peduncle, filiform, sub-erect to descending, flexuous. *Flower* 0.8–1 cm tall, to five in number, singly successive, resupinate, upward facing with the palae pendent, spreading widely, pedicels to 0.6 cm long.

Range, elevation and habitat: *Stelis ornata* is found in Mexico (state of Oaxaca), Guatemala (department of Alta Verapaz), El Salvador (department of Cerro Montecristo) and Costa Rica (province of Alajuela) at elevations of 1500–2500 m in montane oak and pine forest. It grows as an epiphyte on mossy branches and as a lithophyte on mossy rocks. This species is probably common in at least part of its range. It is likely to bloom at any time, as it does in cultivation.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: Although this species is relatively common in collections, it certainly has some of the most amazing flowers. The small, dark-spotted blooms face upwards and are edged with proportionately large, white tassels that dangle from the sepal margins. These tassels are called paleae, and they sway with the slightest movement of air. They can accumulate a static charge that sometimes sees them orientated in every possible position. *Stelis ornata* was mistakenly called *Pleurothallis schiedeii*, but the latter name belongs to a separate taxon that was moved to a different genus. A highly recommended collector's item, *Stelis ornata* is likely to bloom at any time of year.

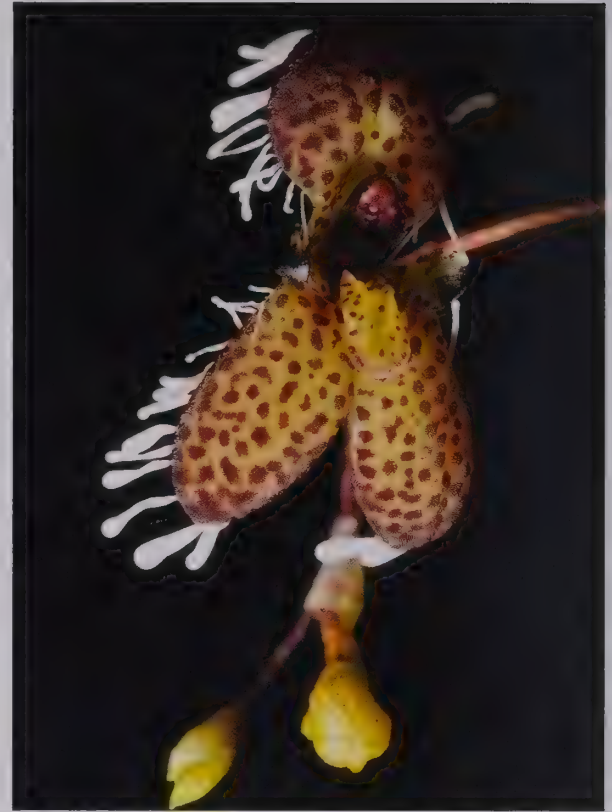


Figure 4.1387 (above) *Stelis ornata* has incredible flowers with tasselled sepals (Grower: Judy Carney).



Figure 4.1388 (above) *Stelis ornata* plants growing in situ on a tree trunk amongst mosses (Photo: Gary Yong Gee).

Figure 4.1389 (facing page) The flower of *Stelis ornata* in detail, its tassels angled haphazardly (Grower: Marni Turkel).



STELIS***Stelis pilosa*** Pridgeon & M.W.Chase**Publication:** *Lindleyana* 17: 100 (2002)**Etymology:** From the Latin *pilus* (with long soft hairs).**Homotypic synonyms:** *Effusiella amparoana* (Schltr.) Luer, *Pleurothallis amparoana* Schltr., *Specklinia amparoana* (Schltr.) Luer, *Stelis amparoana* (Schltr.) Pridgeon & M.W.Chase, nom. illeg.**Morphology:** *Plant* 10–15 cm tall, rarely taller, clumping, erect. *Ramicaul* 3–6 cm tall, erect. *Leaf* 7–11 cm long by 1–1.3 cm wide, subpetiolate, narrowly linear-obovate, apex sub-acute to obtuse, lamina erect. *Inflorescence* a loose raceme, 9–14 cm long including peduncle, slender, sub-erect to descending, flowers distichous. *Flower* 1.2–1.5 cm long, several to many in number, simultaneous, resupinate, not spreading widely, lateral sepals connate to form cup-like synsepal, pedicels minute.**Range, elevation and habitat:** *Stelis pilosa* occurs in Costa Rica (provinces of Aljuela, Heredia, Puntarenas and San Jose), as well as in Panama (province of Chiriquí). It grows on trees, often as a canopy epiphyte, in moist montane and cloud forest at elevations of 1100–1800 m. Flowering occurs between May and June. No conservation status information could be found.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to intermediate-cool.**Comments:** *Stelis pilosa*, known for many years as *Pleurothallis amparoana* and labelled to that effect in almost every collection, is affectionately known by the nickname, “fuzzy toilet bowl”, in reference to the plush synsepal. Plants of this species occasionally grow taller than the 15 cm limit indicated, but the vast majority of individuals do not. The flowers have so much charm that it has become the favourite species of many collectors, in addition to being easy to grow, freely branching to make sizable specimens, and readily available. *Stelis pilosa* can bloom at any time of year, often with spectacular flushes of flowers.**Figure 4.1390 (above)** The ‘fuzzy toilet bowls’ of *Stelis pilosa* also resemble *Cypripedium* (Grower: White Oak Orchids).**Figure 4.1391 (above)** A beautiful mass of ethereal looking *Stelis pilosa* flowers (Grower: White Oak Orchids).

STELIS

Stelis resupinata (Ames) Pridgeon & M.W.Chase

Publication: *Lindleyana* 16: 266 (2001)

Etymology: From the Latin *resupinatus* (inverted, resupinate), referring to the position of the flowers.

Homotypic synonyms: *Effusiella resupinata* (Ames) Luer, *Pleurothallis resupinata* Ames, *Specklinia resupinata* (Ames) Luer.

Morphology: Plant 5–10 cm tall, clumping, erect. *Ramicaul* 2–4.5 cm, erect. *Leaf* 2.5–5.5 cm long by 0.8–1.5 cm wide, petiolate, elliptical, apex sub-acute to obtuse, lamina erect, rigid, fleshy, spotted or mottled with purple ventrally. *Inflorescence* a loose raceme, 5–15 cm long including peduncle, elongating between flowers, flowers sub-secund, emerging near apex of ramicaul. *Flower* 0.5–0.7 cm long, few in number, singly successive, occasionally 2 open simultaneously, resupinate, not spreading widely.

Range, elevation and habitat: *Stelis resupinata* is a fairly widespread and rather abundant species found in the mountains of western Mexico, occurring in the states of Guerrero, Jalisco, Michoacán and probably Nayarit. It occurs at elevations of 1500–1700 m where it grows as an epiphyte, or rarely as a lithophyte, in montane forest, seasonally dry forest, moist pine-oak forest and evergreen cloud forest. In nature *S. resupinata* flowers between June and February.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

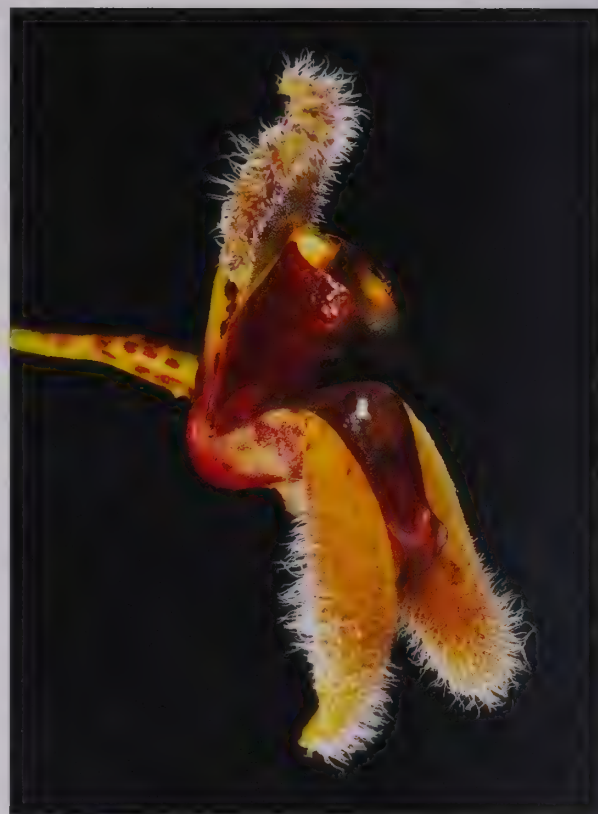
Comments: It is rather surprising that the charming *Stelis resupinata* is not more commonly seen in collections as it is easy and rewarding to grow. The plant is very attractive, with fleshy leaves that are spotted with purple on the undersides. The cute, spotted flowers are held on erect, wiry spikes. Plants in cultivation tend to flower between summer and mid- to late winter as they do in nature.



Figure 4.1392 (above) *Stelis resupinata* has dainty flowers richly spotted with purple (Grower: Marni Turkel).



Figure 4.1393 (above) *Stelis resupinata* leaves are also spotted purple beneath (Grower: Petite Plaisance).

STELIS***Stelis rodrigo*** (Luer) Pridgeon & M.W.Chase**Publication:** *Lindleyana* 16: 266 (2001)**Etymology:** Named in honour of the late Señor Rodrigo Escobar (1935–2009) of Medellín, Colombia, well-known orchidologist.**Homotypic synonym:** *Condylago rodrigo* Luer.**Morphology:** *Plant* 7–13 cm tall, clumping, erect. *Ramicaul* 2–3 cm tall, erect. *Leaf* 5–10 cm long (including petiole) by 1.5–2.5 cm wide, narrowly elliptical, apex acute, lamina erect, thinly leathery. *Inflorescence* a loose raceme, to 25 cm long including peduncle, many simultaneous inflorescences, flexuous, sub-erect to descending, borne from apex of ramicaul. *Flower* 1.8–2.2 cm tall, several to many in number, singly successive, widely spreading, resupinate, sepals with hirsute margins, lip hinged, mobile.**Range, elevation and habitat:** *Stelis rodrigo* has only been found in one locality in northwestern Colombia, in the department of Antioquia (municipality of Dabeiba, Alto de Choromandó). It grows at elevations of 1400–1600 m, where it occurs as an epiphyte in a moist montane forest. No bloom-time or conservation status information could be found.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to cool.**Comments:** *Stelis rodrigo*, formerly known as *Condylago rodrigo*, is a species that many believe should be kept in its former genus. Not only is it distinctive because of its hinged lip, but a second, similar species, *C. furculifera* Dressler & Bogarin, was also recently discovered, though the name remains unplaced. *Stelis rodrigo* is a popular plant frequently seen in pleurothallid collections; many collectors find the dark flowers and their contrasting greyish, fuzzy margin quite attractive. This species is easy to grow and readily available, and the authors highly recommend it. *Stelis rodrigo* seems to flower at any time in cultivation.**Figure 4.1394 (above)** *Stelis rodrigo* has attractive, fuzzy flowers of great merit (Grower: Marni Turkel).**Figure 4.1395 (above)** Flowers of the Colombian endemic, *Stelis rodrigo* (Grower: Orchid Species Plus).**Figure 4.1396 (facing page)** *Condylago furculifera* is an intriguing, closely related species (Grower: J & L Orchids).



STELIS***Stelis wagneri*** (Schltr.) Pridgeon & M.W.Chase**Publication:** *Lindleyana* 16: 267 (2001)**Etymology:** Named in honour of Moritz Friedrich Wagner (1813–1887), a German botanist and zoologist, who collected in North and Central America. Wagner discovered this species.**Homotypic synonyms:** *Pleurothallis wagneri* Schltr., *Unciferia wagneri* (Schltr.) Luer.**Heterotypic synonyms:** *Pleurothallis aguilarii* Ames, *Pleurothallis falcatiloba* Ames.**Morphology:** *Plant* 4–11 cm tall, clumping, erect. *Ramicaul* 0.5–1.5 cm tall, erect. *Leaf* 2.5–9 cm long by 1–1.6 cm wide, subpetiolate, conduplicate at the base, narrowly ovate, apex obtuse to rounded, lamina erect. *Inflorescence* a raceme, 6–10 cm long including peduncle, sub-erect, flowers secund, emerging from near apex of ramicaul. *Flower* 2 cm long, several in number, simultaneous, resupinate, not spreading widely, nodding, pedicels to 0.5 cm long.**Range, elevation and habitat:** Originally thought to be endemic to Costa Rica (provinces of Heredia and San José) and Panama (provinces of Chiriquí and Coclé), *Stelis wagneri* has recently been collected in Ecuador, in the province of Loja. There is also a collection record from Colombia, but without locality data. This species grows as an epiphyte in moist to wet montane forest at elevations of 1700–2000 m. No bloom-time or conservation status information could be found for *S. wagneri*.**Culture recommendations:** See general notes for the genus. *Temperature* intermediate to cool.**Comments:** Although dark and sombre in colour, the flowers of *Stelis wagneri* are quite handsome. The numerous blooms all nod from one side of the inflorescence, and a mature plant can have multiple spikes, producing an attractive floral display. Long known as *Pleurothallis wagneri*, *S. wagneri* is also easy to cultivate, adaptable to a range of culture conditions and relatively available. Flowering tends to occur between late winter and mid-spring in cultivation.**Figure 4.1397 (above)** The handsome, sombre flowers of *Stelis wagneri* are borne in single ranks (Grower: Judy Carney).**Figure 4.1398 (above)** The fine blooms of *Stelis wagneri* in detail (Grower: John Leathers).

Stenia Lindl.

Publication: *Edwards's Bot. Reg.* 23: t. 1991 (1837)

Subtribe: Epidendroideae

Tribe: Maxillarieae

Subtribe: Zygopetalinae

Type species: *Stenia pallida* Lindl., 1837, *Edwards's Bot. Reg.* 23: t. 1991.

Etymology: From the Greek *stenos* (narrow), referring to the long, narrow pollinia of the type species.

Heterotypic synonyms: *Dodsonia* Ackerman, *Stenopolen* Raf.

Profile: A genus of over 20 species that occur in Trinidad, Venezuela, Brazil, Colombia, Peru and Bolivia. The plants grow as epiphytes on mossy, shady trunks and branches in evergreen wet forest at elevations from 500–2200 m.

General morphology: *Plant* sympodial, small to medium sized, fan-shaped, clumping, branching, erect. *Pseudobulb* lacking, stemless, leaves distichous, imbricating. *Leaf* conduplicate at base, softly leathery. *Inflorescence* a raceme, terete, slender, axillary. *Flower* large, often showy, single, usually resupinate, sepals and petals spreading, subsimilar, lateral sepals joined to column foot, lip fleshy, saccate, pollinia 4, in two pairs of different sizes. Flowers are usually short-lived.

General culture notes: *Substrate* these species are best grown in a pot using a fine bark mix or moss. They may possibly be mounted on a large piece of flat cork bark, rough wood shingles or possibly tree fern plaques, using New Zealand *Sphagnum* moss around the roots. These plants have large, prolific roots that need to be kept moist. The authors recommend growing *Stenia* in pots for best results. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, but ensure excellent drainage. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly.



Figure 4.1399 (above) The flower of *Stenia pallida*. This taxon, the type species of the genus, may grow up to 25 cm tall (Grower: Tom Mudge).

STENIA

Stenia calceolaris (Garay) Dodson & D.E.Benn.

Publication: *Icon. Pl. Trop.*, II, 2: t. 180 (1989)

Etymology: From the Latin *calceolatus* (slipper shaped), referring to the shape of the labellum.

Homotypic synonyms: *Chaubardiella calceolaris* Garay, *Chaubardiella parsonii* Hort ex Jenny.

Morphology: *Plant* 10–12 cm tall. *Leaf* to 12 cm long by 2 cm wide, petiolate, elliptic to obovate, apex acute, acuminate, lamina erect to sub-erect. *Inflorescence* a raceme, to 4 cm in length, slightly ascending, lax. *Flower* to 3 cm tall, resupinate, widely spreading. Flowers vary from pale green to yellowish green, and in the density and size of spots on the segments and lip.

Range, elevation and habitat: *Stenia calceolaris* is an uncommon species that occurs in Ecuador (provinces of Loja and Zamora-Chinchi) and Peru (department of Amazonas) at elevations of 1200–2200 m. It grows as an epiphyte in wet montane and cloud forests. Flowering in nature occurs most frequently between November and May.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: *Stenia calceolaris* is quite uncommon in cultivation, but it is a highly desirable collector's item. The full, green flowers are extremely attractive, with variably brown-spotted petals and an egg-shaped lip. The flowers are perched low on the plant, often resting on the medium when grown in a pot, or below the plant when grown mounted. Obtaining this taxon will require some effort, but it is well worth the search. This species tends to bloom between late spring and early autumn in cultivation, but it can flower randomly at other times.

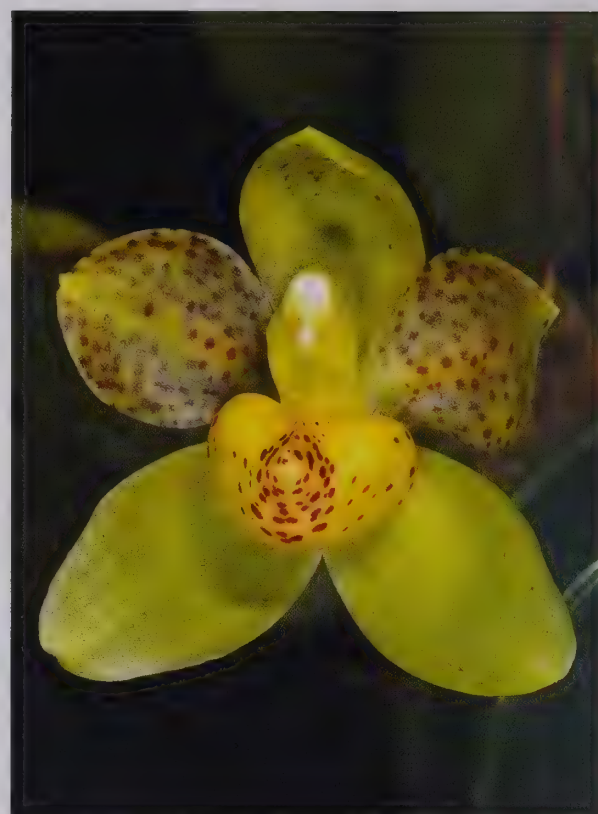


Figure 4.1400 (above) The attractive flower of the rarely seen *Stenia calceolaris* (Grower: Marni Turkel).

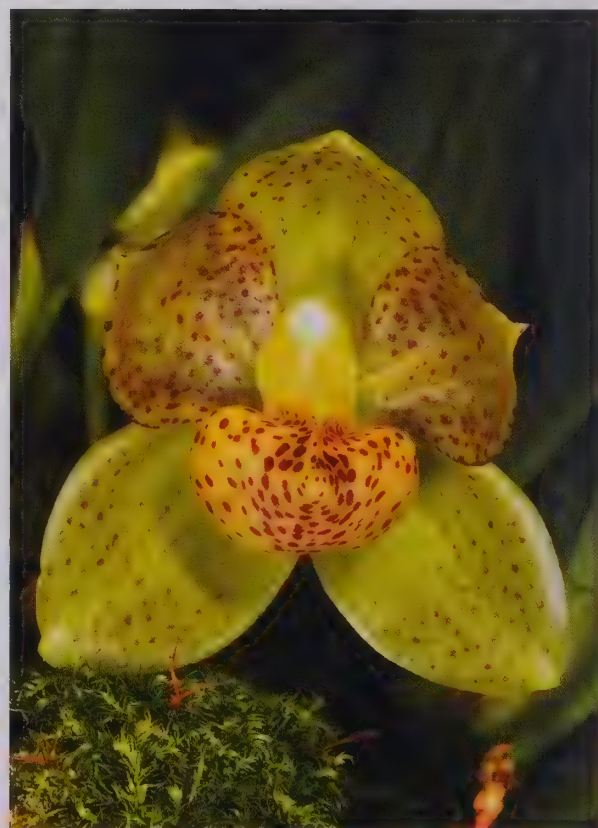


Figure 4.1401 (above) *Stenia calceolaris* is named after its slipper shaped labellum (Grower: Marni Turkel).

STENIA

Stenia luerorum D.E.Benn. & Christenson

Publication: *Lindleyana* 13: 91 (1998)

Etymology: Named for Dr. Carlyle A. Luer (1922-) and Mrs. Jane Luer (1922-). Dr. Luer is an American orchid enthusiast and an expert on North American native orchids and the Pleurothallidinae. Mrs. Luer accompanies Dr. Luer on many of his botanical trips.

Morphology: *Plant* to 10 cm tall. *Leaf* 6.5–10 cm long by 2 cm wide, subpetiolate, elliptic to ovate, apex acute. *Inflorescence* a raceme, to 5 cm in length. *Flower* to 6 cm long, proportionately large, resupinate, spreading widely.

Range, elevation and habitat: The type specimen of *Stenia luerorum* was collected in the department of Pasco, Peru (municipalities of Oxapampa and Chontabamba), at an elevation of 1600 m. It grows in wet montane forest and remains a rare species. It often flowers in September and October in nature. This species is listed as critically endangered on the IUCN Red list.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: Most *Stenia*, with the exception of *S. pallida*, are rare in cultivation, and *S. luerorum* is notably so. It is hoped that these rarities will be propagated and increasingly dispersed amongst collectors. The lovely blooms are nearly glassine, with a smallish, somewhat pinched lip, and proportionately large in relation to the plant. It appears to be similar to *S. bismarkii* Dodson & D.E.Benn., but the flowers of the latter are larger, greenish, and have a broader lip. Plants of *Stenia luerorum* have been seen in bloom in late spring and early winter, but it is likely that they may also flower at other times.



Figure 4.1402 (above) The flower of *Stenia luerorum* is proportionately large and rather fine (Grower: Marni Turkel).



Figure 4.1403 (above) *Stenia bismarkii* has a broader lip and larger bloom (Grower: Marni Turkel).

STENIA

Stenia stenioides (Garay) Dodson & R. Escobar

Publication: *Orquideologia* 18: 206 (1993)

Etymology: Like a *Stenia* (this species was first described as *Chondrorhyncha stenioides*).

Homotypic synonym: *Chondrorhyncha stenioides* Garay.

Morphology: *Plant* to 15 cm tall. *Leaf* to 15 cm long by 4 cm wide, subpetiolate, obovate to oblanceolate, apex acute to obtuse, apiculate, lamina thinly leathery. *Inflorescence* a raceme, to 5 cm in length, sub-erect to pendent, peduncle broader towards apex, axillary or lateral. *Flower* 3.5–4 cm wide, resupinate, widely spreading, ovary 2 cm.

Range, elevation and habitat: *Stenia stenioides* is found in Ecuador (provinces of Pastaza and Tungurahua) and Peru (department of Pasco), where it grows in wet montane forest at elevations of 1000–1300 m. It is quite rare. Flowering occurs between January and April in nature. This species is listed as vulnerable on the IUCN Red list.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: *Stenia stenioides* is the rarest of the *Stenia* species featured in this work, but its lovely green flowers demand its inclusion here. As with *S. luerorum*, rare plants such as this should be propagated and dispersed amongst growers so that they are not lost to cultivation. Plants of most *Stenia* are also rare in nature, tending to be localised and few in number, rather than in colonies. *Stenia stenioides* appears to bloom randomly in cultivation, with flowers seen across all seasons.



Figure 4.1404 (above) *Stenia stenioides* is one of the least commonly seen member of this genus, but it has wonderful, relatively large flowers of yellowish green (Grower: Cindy Hill).

Stereochilus Lindl.

Publication: Lindley, J., 1859, *J. Proc. Linn. Soc., Bot.* 3: 38

Subfamily: Epidendroideae
Tribe: Vandeae
Subtribe: Aeridinae

Type species: *Stereochilus hirtus* Lindl., *J. Proc. Linn. Soc., Bot.* 3: 38 (1859).

Etymology: From the Greek *stereos* (solid, firm) and *chilus* (lip), in reference to the lip of the flower.

Profile: A genus of approximately 8 epiphytic species from Southeast Asia and India.

General morphology: Monopodial, branching at base, leaves distichous, imbricating. *Leaf* sessile, leathery. *Inflorescence* a raceme, lax, lateral, axillary. *Flower* sepals adnate to the base of lip, lip adnate to column, column base with sac-like spur, column erect, lacking foot, pollinia 4, equal.



Figure 4.1405 (above) *Stereochilus brevirachis* has small, but colourful flowers and dark, attractive leaves (Grower: Holger Perner/Hengduan Biotech).

STEREOCHILUS

Stereochilus brevirachis Christenson

Publication: *Orchid Digest* 62: 123 (1998)

Etymology: From the Latin *brevi* (short, abbreviated) and *rachis* (inflorescence), in reference to the short inflorescence.

Morphology: *Plant* to 9 cm wide, stem to 2.5 cm tall, erect, slowly clumping, leaves two ranked, to 9 (or more) in number, roots relatively large, thick. *Leaf* to 4.8 cm long by 0.8 cm wide, linear to narrowly ovoid, apex acute to obtuse, apiculate, lamina straight to arcuate, leathery, thickened, rigid, surface transversely rugose. *Inflorescence* a congested raceme, to 4.5 cm in length, flexuose, horizontal to laxly pendent, dark green, mottled purple, bracteate, verrucose, *Flower* to 1.2 cm wide, 2–5 in number, simultaneous, resupinate, widely spreading, column and lip slightly asymmetrical, ovary verrucose.

Range, elevation and habitat: *Stereochilus brevirachis* is found in northwestern Vietnam (province of Ha Giang and other provinces along border with Laos) and China (province of Yunnan) at elevations of 800–1500 m. A rare species, it is found growing as a canopy epiphyte on moss and lichen-covered, stunted trees in humid forest on limestone hills. One collection record from Vietnam described the species as growing as an epiphyte on a tall tree, in a slightly logged, primary, closed, evergreen broadleaf forest in the Phieng Luong municipality. This region has an utterly dry, but humid winter, with temperatures that range from 10–15 °C (50–59 °F). The summers are rainy and temperatures range from 20–30 °C. *Stereochilus brevirachis* blooms in April to May in nature (L. Averyanov, pers. comms., 2012).

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species can also be grown in small pots using moss or a fine bark mix, but it should be kept dry during the winter. *Temperature* intermediate-warm. *Light* light shade. *Watering* water frequently, but allow to approach dryness between waterings. During the winter months, mist roots every few days and ensure that humidity is high. *Humidity* high. *Air movement* good. *Propagation* by seed, occasionally by division. *Fertilise* at 1/4 strength weekly. It is best to reduce fertiliser during the winter months as this coincides with the natural dormancy of this species.

Comments: The charming *Stereochilus brevirachis* made an appearance in cultivation shortly after its discovery, but it now seems rather scarce. It has many desirable qualities for lovers of miniatures; the plant is very attractive, with two ranked, textured leaves, and readily forms clumps. Though the flowers are smallish, they are full and quite colourful. *Stereochilus brevirachis* tends to flower most frequently during the spring months.

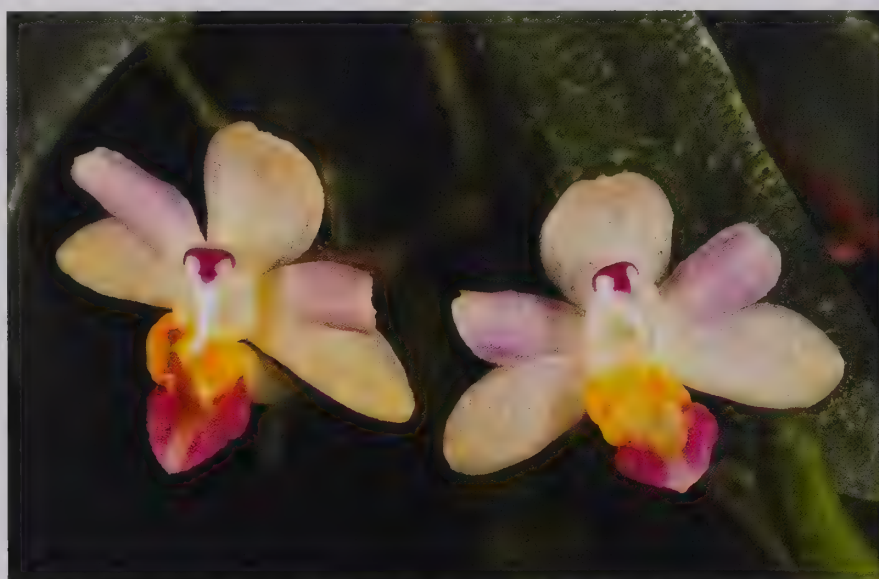


Figure 4.1406 (above) A pair of *Stereochilus brevirachis* blooms. The taxon is rare in cultivation, but deserves to be more widely grown (Grower: Holger Perner/Hengduan Biotech).

STEREOCHILUS

Stereochilus dalatensis (Guillaumin) Garay

Publication: *Bot. Mus. Leafl.* 23: 205 (1972)

Etymology: From Da Lat, a city in the Lang Bian Mountains of south Vietnam.

Homotypic synonym: *Sarcanthus dalatensis* Guillaumin.

Heterotypic synonym: *Sarcanthus crassifolius* Rolfe ex Downie, nom. illeg.

Morphology: *Plant* to 10 cm wide, stem 3–10 cm long, sometimes branching at base, leaves two-ranked, many in number. *Leaf* 3–5 cm long by 0.8–1.1 cm wide, linear-acuminate, apex acute, lamina more or less conduplicate, straight, spreading, leathery, rigid, shiny, sometimes suffused with red. *Inflorescence* a raceme, to 12 cm long, spreading to descending, multi-angular, often suffused with purple. *Flower* 0.9–1.8 cm tall, to 9 in number, occasionally more, simultaneous, resupinate, spreading, sepals and petals reflexed, lip and column forward-jutting, spur 0.3–0.4 cm in length, fragrant.

Range, elevation and habitat: *Stereochilus dalatensis* is found in China (southeastern Yunnan province), Thailand and Vietnam at elevations of 800–2000 m in evergreen montane forest. In Vietnam, it is found in a very small, orchid rich area (not more than 2500 square kilometres) around Dalat city, where it grows as a canopy epiphyte on trees growing in granite, quartzite and gneiss soils. This region has consistent, year round temperatures of 15–20 °C (59–68 °F), with rainy summers and drier, but very humid winters. *Stereochilus dalatensis* blooms between the end of April and the beginning of June. (L. Averyanov, pers. comms., 2012). Conservation status unknown.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. These species can also be grown in small pots using moss or a fine bark mix. *Temperature* intermediate-warm. *Light* light shade. *Watering* water frequently during spring to autumn, but allow to approach dryness between waterings. Greatly reduce watering frequency during the winter, but mist roots every few days and ensure that humidity is high. *Humidity* high. *Air movement* good. *Propagation* by seed, occasionally by division. *Fertilise* at 1/4 strength weekly. It is best to reduce fertiliser during the winter months, particularly in areas with short day lengths and long overcast periods.

Comments: *Stereochilus dalatensis* is more common in cultivation than the previous species, and the authors have seen hundreds of cultivated plants in the United States. Both the plant and flowers are distinctly larger than *S. brevirachis*, and noticeably different. The beautiful blooms are numerous



Figure 4.1407 (above) The petals and sepals of *Stereochilus dalatensis* are strongly reflexed (Grower: White Oak Orchids).

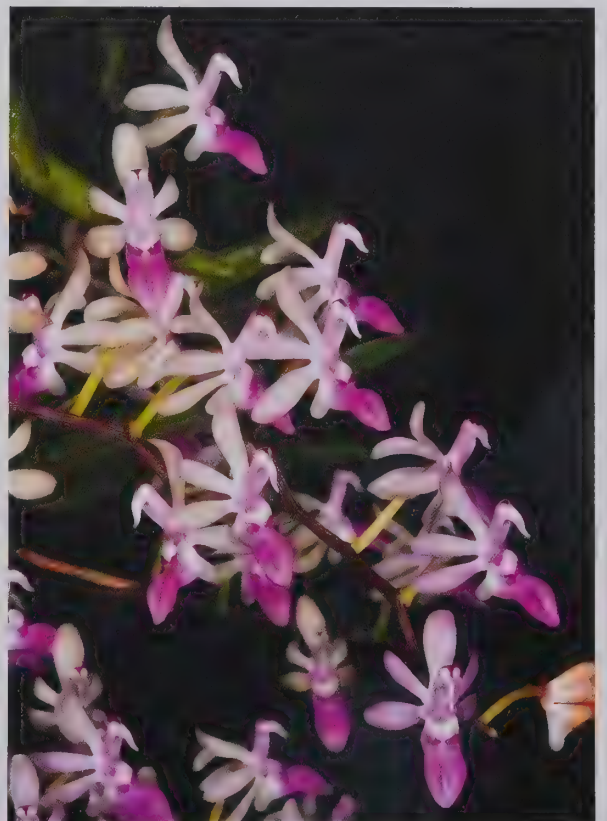


Figure 4.1408 (above) A profusion of *Stereochilus dalatensis* flowers is a wonderful sight (Grower: Marni Turkel).

STEREOCHILUS

and nicely spaced along the spike, with a wonderful appearance that is reminiscent of birds in flight. The sepals and petals are reflexed, giving the lip and column a forward-protruding appearance. This highly worthwhile species tends to flower between mid-spring and early summer in cultivation.



Figure 4.1409 (above) A spreading *Stereochilus dalatensis* inflorescence (Grower: White Oak Orchids).

Figure 4.1410 (below) *Stereochilus dalatensis* is more commonly cultivated than other taxa within the genus. Its brightly coloured blooms are beautiful and reminiscent of birds in flight (Grower: Marni Turkel).

Sunipia Lindl.

Publication: Lindley, J., 1826, *Orchid. Scelet.*: 14, 21, 25

Subfamily: Epidendroideae

Tribe: Podochilae

Subtribe: Bulbophyllinae

Type species: *Sunipia scariosa* Lindl., 1833, *Gen. Sp. Orchid. Pl.*: 179.

Heterotypic synonym: *Ione* Lindl.

Etymology: *Sunipia* is the local name for the type species in Nepal.

Profile: Approximately 22 epiphytic or lithophytic species found in China, India, Bangladesh, Bhutan, Nepal, Laos, Myanmar, Thailand, Vietnam and Taiwan.

General morphology: *Plant* sympodial, repent, rooting at base of pseudobulb. *Pseudobulb* spaced along rhizome, unifoliate. *Leaf* subpetiolate, oblong, leathery. *Inflorescence* a raceme, erect to descending, slender, lateral from base of pseudobulb. *Flower* one to many, sepals and petals free, subsimilar, spreading, lip unlobed or trilobed with or without a callus, column short, stout, with short foot, pollinia 4, in pairs in separate anther chambers, each pair with separate stipe.



Figure 4.1411 (above) Flowering *Sunipia bicolor* plants growing epiphytically on a tree branch in Nepal (Photo: Bhakta Bahadur Raskoti).

SUNIPIA

Sunipia bicolor Lindl.

Publication: *Gen. Sp. Orchid. Pl.*: 179 (1833)

Etymology: From the Latin *bi* (two) and *color* (colour), possibly referring to the bicoloured flower or plant.

Homotypic synonyms: *Bulbophyllum bicolor* (Lindl.) Hook.f., *Ione bicolor* (Lindl.) Lindl.

Heterotypic synonyms: *Dipodium khasyanum* Griff., *Ione khasyana* (Griff.) Lindl.

Morphology: *Plant* 7–12 cm tall, creeping, pseudobulbs spaced 1.2–3 cm apart along the rhizome. *Pseudobulb* 1–2 cm tall by 0.6–1 cm wide, globose to conical to sub-ovoid, apically narrowing, faintly rugose, reddish-brown when mature, unifoliate. *Leaf* 3–11 cm long by 0.5–1.6 cm wide, shortly petiolate, linear elliptic, apex obtuse, lamina leathery. *Inflorescence* a loose raceme, 3–7 cm long, sub-erect to descending. *Flower* 0.7–0.9 cm tall, to 12 in number, simultaneous, resupinate, spreading widely, lateral sepals connate at least one-third of their length, side-lobes of lip with two small auricles at base. Flowers vary in degree of spreading and number of flowers per inflorescence.

Range, elevation and habitat: *Sunipia bicolor* is a common species, found in Bhutan, the northwest and eastern Himalayan regions of India, Sikkim, Myanmar, China (southeast Xizang and western Yunnan), Nepal, Thailand and Bangladesh. It grows as an epiphyte on tree trunks and larger branches, as well as lithophytically on rocks along ravines, in seasonally moist, cool montane forest at elevations of 1500–2800 m. In Nepal, *S. bicolor* is a localised species that is considered threatened by deforestation and collection for commercial use. This species flowers at various times in different countries and at different elevations, but usually does so between July and December.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the repent habit of the plant. *Temperature* intermediate to cool. *Light* light shade to medium shade. *Watering* water frequently, but allow to approach dryness between waterings. Reduce watering frequency during the winter, misting the roots at least once per week. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or withhold fertiliser during winter.

Comments: The genus *Sunipia* is an assemblage of very different looking species. Several, including *S. bicolor*, were placed in the genus *Ione*, now reduced to synonymy with *Sunipia*. Some species of *Sunipia* have several flowers, whilst others produce just one. Out of bloom, plants can easily be



Figure 4.1412 (above) A series of *Sunipia bicolor* blooms on a pendent inflorescence (Grower: Cindy Hill).



Figure 4.1413 (above) Different *Sunipia bicolor* clones produce different numbers of flowers (Grower: Cindy Hill).

SUNIPIA

mistaken for *Bulbophyllum*, a closely related genus. *Sunipia bicolor* is one of the coolest-growing members of the *Bulbophyllum* alliance, but plants will also grow well under intermediate conditions. It is easy to cultivate and forms attractive specimens, but needs to be grown on a mount or in a basket. This species is quite floriferous, and although the flowers are not what most would call beautiful, they are rather interesting. In cultivation the inflorescences can grow longer and bear more flowers than in nature. The flowers tend to appear during the autumn months in cultivation.



Figure 4.1414 (above) Flowers of a differently coloured individual of *Sunipia bicolor* (Grower: Marni Turkel).

SUNIPIA

Sunipia grandiflora (Rolfe) P.F.Hunt

Publication: *Kew Bull.* 26: 184 (1971)

Etymology: From the Latin *grandis* (large, showy) and *flora* (flower), in reference to the flower, which is large for this genus.

Homotypic synonym: *Ione grandiflora* Rolfe.

Morphology: Plant to 9 cm tall, repent, pseudobulbs spaced 1–3 cm along rhizome. *Pseudobulb* to 2 cm tall by 1.5 cm wide, orbicular-globose to conical-ovoid, rooting profusely from base, covered in fine, papery bracts, rugose, reddish-brown in colour, unifoliate. *Leaf* 3–7.5 cm long by 0.7 cm wide, petiole reddish, ligulate, apex sub-acute, minutely bilobed, lamina conduplicate, erect to sub-erect, sometimes slightly arcuate, dark green. *Inflorescence* a raceme, peduncle to 2 cm in length, erect to sub-erect. *Flower* 2–2.5 cm tall, single, resupinate, widely spreading. The background colour of the sepals and petals can vary from dark maroon to pinkish, with some forms having longitudinal reddish stripes.

Range, elevation and habitat: *Sunipia grandiflora* grows as an epiphyte in the seasonally wet montane forests of northern Thailand, Laos, Myanmar and China (province of Yunnan) at elevations around 1100 m. This species flowers in summer and autumn in nature. No conservation status information could be found.

Culture recommendations: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the repent habit of the plant. *Temperature* intermediate to cool. *Light* light shade to medium shade. *Watering* water frequently, but allow to approach dryness between waterings. Reduce watering frequency during the winter, misting roots at least once every 7–10 days. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce or omit fertiliser during winter.

Comments: *Sunipia grandiflora* is uncommon in collections, but relatively available. The lovely flowers are nothing like those of *S. bicolor*, and are actually quite variable in colouration. The authors are certain that they have not yet seen the full range of variation in this species. It has a more creeping habit than *S. bicolor*, but in common with the latter, it must also be grown on a mount or in a basket. Even though *S. grandiflora* comes from lower elevations than *S. bicolor*, it is also amenable to cooler temperatures in winter, though it should be kept dryer. An orchid nursery in southern California grows this species outdoors, where the plants tolerate temperatures to 2 °C (35 °F). *Sunipia grandiflora* usually flowers between mid-spring to mid-summer in cultivation.



Figure 4.1415 (above) The lovely, variably coloured flowers of *Sunipia grandiflora* are highly prized (Grower: Andy's Orchids).



Figure 4.1416 (above) A different *Sunipia grandiflora* colour form (Grower and Photo: Lukasz Sulowski).

Telipogon Kunth

Publication: Kunth, C. S., 1816, *Nov. Gen. Sp.* 1: 335

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Telipogoninae)

Type species: *Telipogon nervosus* (L.) Druce, 1917, *Bot. Soc. Exch. Club Brit. Isles* 1916: 650 (formerly *Telipogon angustifolius* Kunth).

Etymology: From the Greek *telos* (end) and *pogon* (beard), referring to the hairs on the base of the column of the type species.

Heterotypic synonyms: *Astroglossus* Rchb.f. ex Benth. & Hook.f., nom. illeg., *Cordanthera* L.O.Williams, *Darwiniella* Braas & Lückel, nom. illeg., *Darwiniera* Braas & Lückel, *Dipterostele* Schltr., *Sodirolella* Schltr., *Stellilabium* Schltr., *Stellipogon* J.M.H.Shaw.

Profile: A large genus of over 200 epiphytic, rarely terrestrial species, found in southern Mexico, Guatemala, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Venezuela and the island of Hispaniola. These species are often found in the small forks of trees and shrubs, and occasionally in mossy, terrestrial conditions, at elevations of 1400–3000 m. They are found in perpetually wet and breezy forests, frequently near water courses, and often in near-páramo conditions.

General morphology: *Plant* sympodial, pseudobulbs absent, clumping or rhizome creeping or decumbent, leaves 2 to many, bifacial, conduplicate at base, articulate, bases imbricating, eventually deciduous, rooting basally or along stem. *Leaf* leathery, often fleshy. *Inflorescence* one or two, a raceme, usually slender, terete to triquetrous, erect, lateral (sometimes appearing terminal). *Flower* tiny to proportionately large, often showy, one to several in number, usually successive, resupinate, sepals and petals free, spreading, subsimilar, often with prominent venation, column short, pollinia 4.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or hard tree fern. Many growers have reported that these plants do not grow well with New Zealand *Sphagnum* moss, while others have had good results using a little sheet moss around the roots. If humidity is high, plants should do well without any moss. These species are generally not suited to potted culture since the roots need excellent air circulation and dislike constant moisture. *Temperature* dependent upon species. *Light* generally medium shade. *Watering* water frequently using high quality water, but allow roots to dry briefly between waterings. The plants lack pseudobulbs and therefore have little water-storage capacity. *Humidity* high to very high. *Air movement* brisk. *Propagation* occasionally by division, or seed. *Fertilise* at 1/4 strength weekly. These species do not have a rest period.

Comments: Many of these species are difficult to keep alive for any period of time, requiring high water quality, infrequent application of weak fertiliser, excellent air movement, high humidity and some good fortune. The tiny species of *Telipogon* formerly included in the genus *Stellilabium* are even more difficult to grow, and may be naturally short-lived in nature.

Figure 4.1417 (overleaf) The flowering plant of an identified species of *Telipogon* growing as a trunk epiphyte *in situ*, Ecuador. This genus is generally difficult to cultivate, but very rewarding when one meets with success (Photo: Johan Hermans).



TELIPOGON

Telipogon ampliflorus C.Schweinf.

Publication: *Bot. Mus. Leaflet*. 6: 34 (1938)

Etymology: From the Latin *ampli* (large) and *florus* (flower), referring to the proportionately large flower.

Morphology: *Plant* to 8 cm tall, clumping, roots numerous, stout, rooting from base, stem to 1 cm tall. *Leaf* to 5.5 cm long by 1 cm wide, some blades small, narrowing acutely at base, lanceolate-elliptic to narrowly obovate, apex acute, apiculate, lamina sub-erect to spreading, thinly leathery. *Inflorescence* a congested raceme, to 7 cm in length, long pedunculate, terete, erect, slender, sub-terminal. *Flower* to 7 cm in diameter, proportionately large, 1–3 in number, successive, widely spreading, petals 13–15 veined, lip 21–23 veined, lacking callus.

Range, elevation and habitat: *Telipogon ampliflorus* is found in Costa Rica (provinces of Cartago and San José) and Panama (province of Chiriquí). It grows as an epiphyte on mossy trees in high cloud forest, but occasionally on trees in pastures, at elevations from 2000–3050 m. At lower elevations, it can be found growing in dense oak and bamboo forest. This species often grows with other *Telipogon* species. Flowering can occur at any time in nature. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: Plants of the genus *Telipogon* have a reputation for being notoriously difficult to grow and maintain in cultivation for any period of time. There are exceptions, but they are rare, and even the most experienced of growers will suffer losses when trying to grow these beauties. The authors are uncertain about how widely grown *T. ampliflorus* is in collections, but even so, this species exemplifies all that fanciers love about these plants; the brilliant colours, intricate patterns of lines and cross-venation, and the bristly column that mimics a female fly are all marvellous. As for many species in the genus, *T. ampliflorus* may flower at any time year.



Figure 4.1418 (above) *Telipogon ampliflorus* produces comparatively large blooms that are as brilliant in colour as they are in form, the gradation of fine, dark and very attractive venation being of especial appeal (Grower: J & L Orchids).

TELIPOGON

Telipogon biolleyi Schltr.

Publication: *Repert. Spec. Nov. Regni Veg.* 9: 293 (1911)

Etymology: Named for Paul Biolley (1862–1908), a Swiss botanist who studied and collected plants in Costa Rica.

Heterotypic synonym: *Telipogon endresianus* Kraenzl.

Morphology: Plant to 6 cm tall, clumping, rooting from base, stem to 0.5 cm tall, leaves 4–5 in number. Leaf 2–3 cm long by 0.5–0.7 cm wide, elliptic-obovate to elliptic-lanceolate, apex acute, lamina sub-erect to nearly spreading, thinly leathery. Inflorescence a congested raceme, to 15 cm in length, long pedunculate, erect, terete, slender, subterminal, axillary. Flower 2.5–3 cm wide, one to two open simultaneously, to 8 in number, successive, widely spreading, petals 5–7 veined, lip 13–17 veined, but usually 15, occasionally reticulate, callus large, raised, pad-like.

Range, elevation and habitat: *Telipogon biolleyi* grows in Costa Rica (provinces of Alajuela, Cartago, Heredia and San José) and Panama (province of Chiriquí) at 1400–1950 m. This species grows as an epiphyte on mossy trees, often on *Psidium guajava* and *Randia karstenii*, in shaded cloud forest, often with other *Telipogon*. It is the most common and widespread *Telipogon* in Costa Rica and Panama. Flowering may occur at any time in nature.

Culture recommendations: See general notes for the genus. Temperature intermediate-cool to cool.

Comments: While it cannot be said that *Telipogon biolleyi* is easy to grow, it is one of the few species that is occasionally seen in collections. The small, but handsome flower lacks the bold network of veins seen in many of the other species. It has a notably large column, and overall the blooms are more insect-like than those of many of its relatives. If available, this species is one that the authors certainly recommend for culture. *Telipogon biolleyi* can flower at any time year.



Figure 4.1419 (above) The striking flower of *Telipogon biolleyi* is not easily forgotten (Grower: J & L Orchids).



Figure 4.1420 (above) *Telipogon biolleyi* is more commonly seen in cultivation than other *Telipogon* (Grower: J & L Orchids).

TELIPOGON

Telipogon glicensteinii Dodson & R.Escobar

Publication: *Orquideologia* 17: 73 (1987)

Etymology: Named for Leon Glicenstein (1940-), American Orchid enthusiast, known for his vast orchid knowledge and his hybridisation of jewel orchids. He has discovered several new orchid species in Costa Rica.

Morphology: *Plant* to 14 cm tall, caulescent, branching from nodes towards apex, roots produced along stem. *Stem* to 14 cm, leaves several to many in number. *Leaf* to 4 cm long by 1.4 cm wide, obovate, apex obtuse, lamina erect to sub-erect, venation fenestrate. *Inflorescence* a congested raceme to occasionally branched panicle, to 45 cm in length, erect to sub-erect, terete, subterminal. *Flower* 1.5–2 cm wide, to 15 in number with 1–2 open simultaneously, successive, non-resupinate, widely spreading, petals 11–13 veined, lip 19–21 veined.

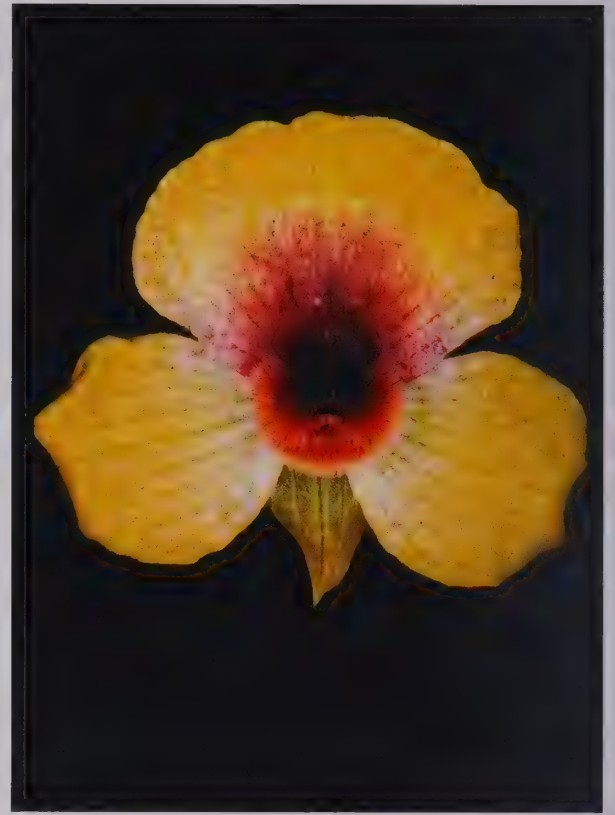
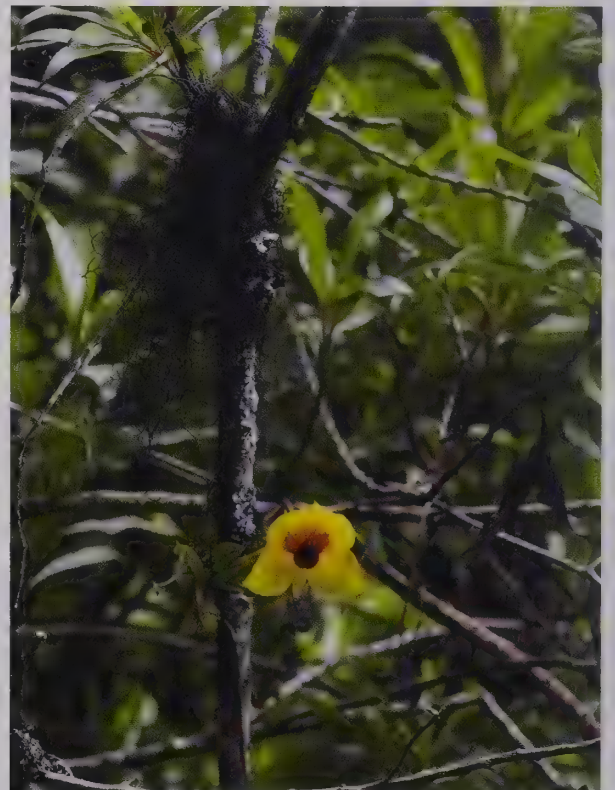
Range, elevation and habitat: *Telipogon glicensteinii* is an uncommon species endemic to Costa Rica (province of San José) at elevations of 2850–3150 m. Plants grow as canopy epiphytes at the top of very large trees (to 30 m tall) in cloud and in dwarf forest at the transition to páramo. This species is often found growing with other *Telipogon* and may flower at any time of year.

Culture recommendations: See general notes for the genus. *Temperature* cool to cold.

Comments: One of the smaller flowered species of the genus, *Telipogon glicensteinii* has beautiful venation. It is rarely seen in cultivation, and plants from Costa Rica are very difficult to obtain. The successively-flowering inflorescence is proportionately extremely long, and is likely to have a role in attracting male flies as it sways in the continuous breezes of the cloud forest. This species may flower at any time in cultivation.



Figure 4.1421 (above) The beautifully veined *Telipogon glicensteinii* is a slightly smaller flowered species in this genus (Grower: Ernest Katler).

TELIPOGON***Telipogon hutchisonii*** Dodson & D.E.Benn.**Publication:** *Icon. Pl. Trop.*, II, 2: t. 188 (1989)**Etymology:** Named for Paul C. Hutchison (1924–1997) of the Botanical Garden at the University of California, Berkeley, who collected extensively in Peru.**Morphology:** *Plant* to 12 cm tall, stem short, leaves to 7 in number. *Leaf* 5–9 cm long by 1–1.5 cm wide, conduplicate at base *Leaf* oblong-ob lanceolate, apex acute to obtuse, apiculate, lamina sub-erect. *Inflorescence* a congested raceme, to 6 cm in length, erect, angular, axillary. *Flower* to 4 cm tall, to 6 in number, to several open simultaneously, successive, resupinate, widely spreading, petals 9–11 veined, lip 13–15 veined, callus small, cordiform, column stout, often densely hairy.**Range, elevation and habitat:** *Telipogon hutchisonii* grows in Ecuador (province of Azuay) and Peru (departments of Amazonas and Cajamarca) at elevations of 2700–3250 m. It grows as an epiphyte in cold, wet cloud forest. No bloom-time records were found, but it is likely that this species can bloom at any time. No conservation status information was available.**Culture recommendations:** See general notes for the genus. *Temperature* cool to cold.**Comments:** Plants of this species were seen in cultivation a number of years ago, but the authors have not seen any in recent times. The flowers are relatively large and of a pleasing shape, but they lack the prominent venation common to many *Telipogon*. The fuzzy column is large, with many rust-coloured hairs. Many of the species in this genus are surrounded by taxonomic confusion, and it is possible that the flower illustrated is not that of *T. hutchisonii*. Even so, the authors feel comfortable with this determination. The only plants seen in cultivation by the authors flowered in late winter.**Figure 4.1422 (above)** The large flowers of *Telipogon hutchisonii* lack prominent venation (Grower: Walter Shinn).**Figure 4.1423 (above)** *Telipogon hutchisonii* growing wild on a tree in Ecuador (Photo: Johan Hermans).**Figure 4.1424 (facing page)** The pleasing *Telipogon hutchisonii* flower in detail (Grower: Walter Shinn).



TELIPOGON

Telipogon papilio Rchb.f. & Warsz.

Publication: *Bonplandia* (Hannover) 2: 101 (1854)

Etymology: From the Latin *papilio* (butterfly), referring to the flower.

Heterotypic synonyms: *Telipogon warszewiczii* Rchb.f.

Morphology: Plant to 10 cm, erect. *Pseudobulb* absent, stem short, leaves 3 or more. *Leaf* to 6 cm long (beyond abscission point) by 1.2 cm wide, folded at base, oblanceolate, apex acute, apiculate, lamina erect, margins microscopically denticulate. *Inflorescence* a congested raceme, to 15 cm in length, shorter or slightly longer than leaves, axillary, bracts prominent. *Flower* to 5 cm tall, to 7 in number, successive, resupinate, widely spreading, petals with 6–10 veins, lip with 12–15 veins.

Range, elevation and habitat: *Telipogon papilio* occurs in Colombia, Ecuador (provinces of Loja, Zamora and Chinchipe), Peru (department of Amazonas and Cusco) and Bolivia (department of Cochabamba) at elevations from 2500–3000 m. It grows in cold, wet, cloud forest. There are bloom-time records for February, but it is likely that this species may bloom at any time. No conservation status information was found.

Culture recommendations: See general notes for the genus. *Temperature* cool to cold.

Comments: The identity of *Telipogon papilio* remains uncertain, with nearly every piece of literature or photograph either describing or illustrating a different species. The original description for this taxon is somewhat detailed, but not sufficient to make a definitive determination, contributing to the confusion. For example, apparently distinct characteristics such as vein number may vary between individual plants. It is with some hesitation that we illustrate *T. papilio* here, as the identification of one or both photos may be incorrect. The flower is truly beautiful, and exemplifies all that people love about these neotropical treasures. Plants of this taxon have been seen blooming between early spring and late summer, but it is probable that flowering also takes place at other times.



Figure 4.1425 (above) *Telipogon* cf. *papilio* growing amongst lichens in Peru (Photo: Guido Deburghgraeve).

Figure 4.1426 (facing page) A magnificent *Telipogon papilio* flower in detail (Grower: Ernie Katler).



TELIPOGON

Telipogon vampyrus Braas & Horich

Publication: *Orchidee (Hamburg)* 33: 98 (1982)

Etymology: Ultimately from *vampir* (vampire), probably derived from Serbian, an allusion to the bat-like appearance of the flower.

Morphology: *Plant* to 5 cm tall, clumping, rooting from base, stem to 0.5 cm tall, leaves few in number. *Leaf* to 3.5 cm long by 0.8 cm wide, elliptic-obovate, apex acute, lamina sub-erect to spreading, thinly leathery. *Inflorescence* a congested raceme, to 20 cm in length, long pedunculate, 2–3 simultaneous inflorescences, erect to sub-erect, slender, subterminal. *Flower* 2–3 cm wide, 1–2 flowers open simultaneously, to 5 in number, occasionally more in cultivation, successive, widely spreading, sepals 3 veined, petals 7–9(–11) veined, densely long pubescent basally, lip 15–17(–19) veined, lacking callus.

Range, elevation and habitat: *Telipogon vampyrus* occurs in the province of San José, Costa Rica, at elevations of 1400–1900 m. This epiphytic species is often found growing with *Telipogon biolleyi* in relatively cool, wet cloud forest. In one locality, the species was described as occurring on trees in woodland pastures and forest remnants. One bloom-time record for February was found, but this species is likely to bloom at other times also. No conservation status was found, but it is probable that this species is threatened due to habitat degradation and human activities.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate cool.

Comments: *Telipogon vampyrus* is one of just a few species in this difficult to grow genus that is occasionally seen in cultivation, and some growers have been able to keep it alive for many years. The brilliantly yellow flowers are stunning by any standard and exhibit a darker veined, coffee-coloured centre. The base of the lip and column are blackish, the latter having long, erect, bristle-like hairs on the dorsal side. Both resupinate and non-resupinate flowers have been seen in this species. Plants of *T. vampyrus* have been seen in flower between early summer and mid-autumn, but it is likely that they can bloom at other times of year.



Figure 4.1427 (above) *Telipogon vampyrus* is one of the more commonly seen members of this genus, its darker, bristly centre is characteristic (Grower: John Leathers).

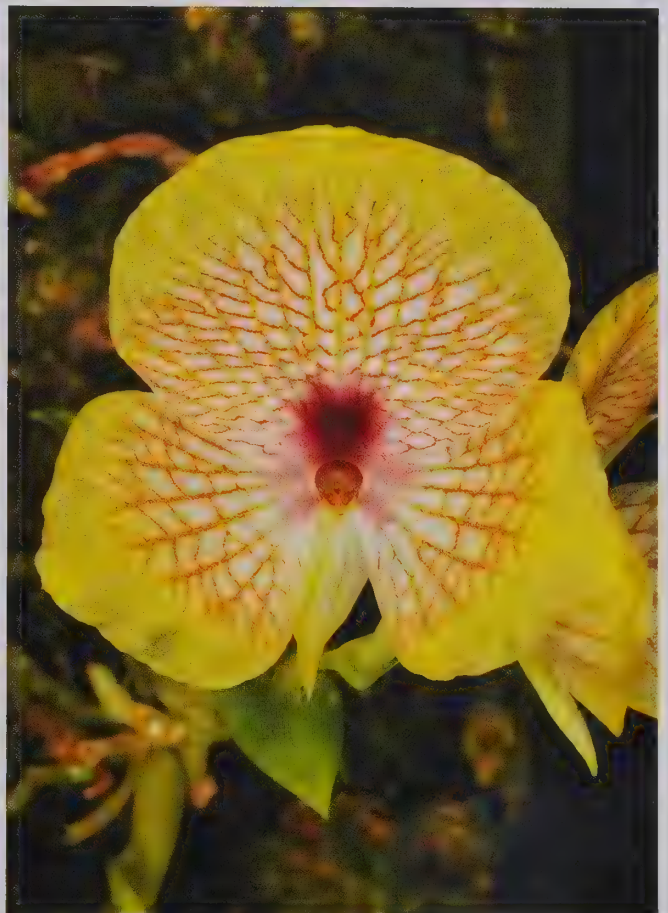


Figure 4.1428 (above) This species has been seen labelled as both *Telipogon ionopogon* and *T. albertii* (Grower: Ron Parsons).

Figure 4.1429 (below left) *Telipogon hausmannianus* growing as a tree epiphyte in nature, Ecuador (Photo: Mary Gerritsen).

Figure 4.1430 (below right) The bloom of *Telipogon hausmannianus* in cultivation (Grower: John Leathers).

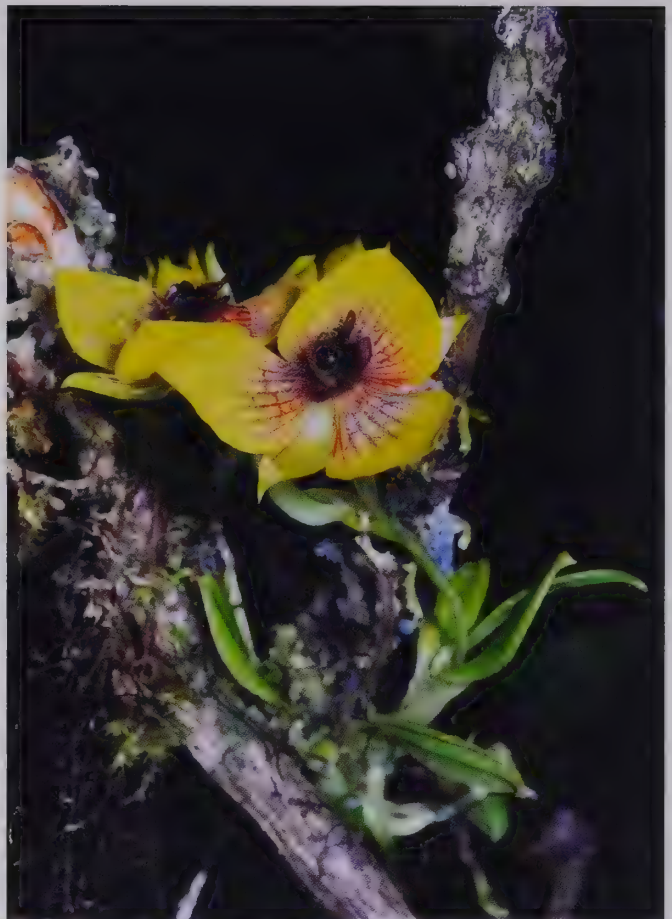


Figure 4.1431 (above left) An unidentified *Telipogon* species (Grower: Marni Turkel).

Figure 4.1432 (above right) An unknown *Telipogon* species photographed in Ecuador (Photo: Mary Gerritsen).

Figure 4.1433 (below) A group of flowering *Telipogon* amongst mosses and lichens on a branch in Ecuador (Photo: Mary Gerritsen).



Figure 4.1434 (above) This unidentified *Telipogon* species was formerly placed within the genus *Stellilabium* (Grower: Ron Parsons).
Figure 4.1435 (below left) A clump of flowering *Telipogon* photographed *in situ*, Ecuador (Photo: Brad Cotten).
Figure 4.1436 (below right) The prettily veined flower of *Telipogon hastatus* (Grower: Marni Turkel).

Tetramicra Lindl.

Publication: Lindley, J., 1831, *Gen. Sp. Orchid. Pl.*: 119

Subfamily: Epidendroideae

Tribe: Epidendreae

Subtribe: Laeliinae

Type species: *Tetramicra canaliculata* (Aubl.) Urb., 1918, *Repert. Spec. Nov. Regni Veg.* 15: 306.

Etymology: From the Greek *tetra* (four) and *micra* (small), possibly referring to the four small pollinia or the four depressions in the anther.

Profile: A genus of 14 lithophytic, epiphytic or terrestrial species from southeastern Florida to many of the Caribbean Islands, including the Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, and the Leeward and Windward Islands.

General morphology: *Plant* sympodial, repent, pseudobulbs usually lacking, leaves distichous, fans of leaves often widely separated along a slender rhizome. *Leaf* sometimes nearly terete, straight to recurved, thick, stiff, leathery. *Inflorescence* a distally congested raceme, long, slender, terete, usually erect, terminal. *Flower* small, sepals and petals subsimilar, lip proportionately large, three-lobed, often obscuring base of sepals and petals, pollinia 8 (4 large and 4 small).



Figure 4.1437 (above) A pair of delicate looking *Tetramicra canaliculata* flowers (Grower: Rudy Bachmann/SLO Gardens).

TETRAMICRA

Tetramicra bulbosa Mansf.

Publication: *Ark. Bot.* 20A(15): 18 (1926)

Etymology: From the Latin *bulbosus* (swollen, having bulbs), referring to the pseudobulbs. This is the only pseudobulbous species in the genus.

Morphology: *Plant* to 12 cm tall, creeping, growths semi-clustered to slowly repent, along thin, brittle ascending rhizome, rhizome elongating between growths. *Pseudobulb* 1–2 cm long by up to 0.5 cm wide, partially obscured by leaf bases, thickened, leaves 1–3 in number. *Leaf* to 10 cm in length by 1 cm wide, narrowly linear to narrowly-elliptic, apex acute, lamina somewhat flattened, fleshy. *Inflorescence* a distally semi-congested raceme, to 35 cm in length, erect. *Flower* 2–2.5 cm wide, to 5 in number, occasionally more, simultaneous, resupinate, widely spreading.

Range, elevation and habitat: *Tetramicra bulbosa* occurs on the islands of Cuba, Jamaica and Hispaniola as a lithophyte on coral limestone in detritus-filled cracks and crevices. It grows in dry conditions in full sun and also on damp, exposed limestone slopes at elevations from 50–150 m. In nature this species blooms between January and May, but it may flower at other times as well. No conservation status could be found, but this species, like many island species, is probably vulnerable to habitat destruction and human activities.

Culture recommendations: *Substrate* mount on flat pieces of cork bark, rough wood shingles or possibly tree fern, using plaques of suitable size without any moss around the roots. These plants are not suited to potted culture as they have a repent habit, and the roots require excellent air circulation and dislike constant moisture. *Temperature* warm. *Light* bright diffuse. *Watering* water frequently, but ensure that plants dry completely between waterings. *Humidity* high. *Air movement* brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: The flowers of *Tetramicra* are relatively similar, the most obvious differences between species being in the characteristics of the plants themselves. *Tetramicra bulbosa* is the only species in the genus with pseudobulbs, making it readily identifiable. Neither of the two species featured here is common in cultivation, and the larger *T. canaliculata* (Aubl.) Urb., the type for the genus, is the only one seen with any regularity. If obtained, *T. bulbosa* should be propagated for dispersion amongst other growers. This species generally blooms in the winter months in cultivation.



Figure 4.1438 (above) *Tetramicra bulbosa* is an uncommon species in collections (Grower: Marie Selby Botanical Gardens).

TETRAMICRA

Tetramicra urbaniana Cogn.

Publication: in I. Urban, *Symb. Antill.* 6: 551 (1910)

Etymology: Named for Ignatz Urban (1841–1931), a German botanist known for his contributions to the flora of the Caribbean and Brazil. He was curator of the Berlin Botanical Garden and worked as Eichler's assistant in the production of the *Flora Brasiliensis*. This was completed under Urban's supervision in 1906, after Eichler's death.

Morphology: Plant to 4 cm tall, repent, scrambling, growths spaced 4–7 cm apart along brittle, scarious bract-covered rhizome, one root per growth. *Pseudobulb* lacking, leaves 2–4 per growth, distichous. *Leaf* to 6.5 cm long by 1 cm wide, lanceolate to elliptic-oblong to ovate, apex acute, lamina sub-erect to spreading, dorsally channelled, fleshy, sometimes minutely spotted with purple on both surfaces. *Inflorescence* a distally semi-congested raceme, to 45 cm long, peduncle remotely several sheathed, erect. *Flower* to 1.5 cm tall, to 7 in number, 1–2 open simultaneously, successive, resupinate, widely spreading.

Range, elevation and habitat: *Tetramicra urbaniana* occurs in the Bahamas and Cuba. It grows as a lithophyte on limestone, and rarely as an epiphyte on *Encyclia gracilis* (Lindl.) Schltr. and *Metoponium toxiferum*. It is found in habitat described as dry, open, rocky scrub characterised by occasional *Pinus caribaea*, dwarfed *Tabebuia bahamensis*, *Acacia choriophylla* and *Psidium longipes*. In the Bahamas it occurs at elevations at or near sea level. This species flowers between March and September in nature. No information on its conservation status is known, but as with many island species, it may be threatened by human activities resulting from encroachment into its habitat.

Culture recommendations: *Substrate* mount on flat pieces of cork bark, rough wood shingles or possibly tree fern, using plaques of a suitable size without any moss around the roots. These plants are not suited to potted culture as they have a repent habit. The roots also require excellent air circulation and dislike constant moisture. *Temperature* warm. *Light* bright diffuse. *Watering* water frequently, but ensure that plants dry completely between waterings. *Humidity* high. *Air movement* brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: *Tetramicra urbaniana*, like *T. bulbosa*, is relatively uncommon to rare in cultivation and should be propagated whenever possible. The smallish flowers are very charming, and held at the end of a disproportionately long spike. Interestingly, several Caribbean orchids, including *Tolumnia*, *Broughtonia* and *Encyclia*, have long inflorescences with flowers clustered at the apex. Both species of *Tetramicra* featured here are dry growing, so the culture recommendations should be followed closely. *Tetramicra urbaniana* tends to bloom between early spring and late summer in cultivation.



Figure 4.1439 (above) *Tetramicra urbaniana* flowers are borne on a long spike (Grower: Marie Selby Botanical Gardens).



Figure 4.1440 (above) The pretty bloom of *Tetramicra urbaniana* (Grower: Andy's Orchids).

Thrixspermum Lour.

Publication: Loureiro, J. de, 1790, *Fl. Cochinch.*: 519

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Type species: *Thrixspermum centipeda* Lour., 1790, *Fl. Cochinch.*: 520.

Etymology: From the Greek *thrix* (hair) and *sperma* (seed), referring to the hair-like seeds.

Heterotypic synonyms: *Cylindrochilus* Thwaites, *Dendrocolla* Blume, *Orsidice* Rchb.f., *Ridleya* (Hook.f.) Pfitzer, *Saccochilus* Blume, *Thylacis* Gagnep.

Profile: A large genus of approximately 100 epiphytic species, ranging from tropical and subtropical Asia to islands in the western Pacific.

General morphology: *Plant* monopodial, stems short to long, leaves distichous, imbricating at base, rooting at base or at nodes along stems. *Leaf* flattened, strap-shaped, leathery, fleshy. *Inflorescence* a raceme, flowers arranged spirally or in two ranks, axillary. *Flower* many in number, to 2 open simultaneously, successive, sepals and petals subsimilar, lip immobile, trilobed, saccate, but spurless, mid-lobe generally fleshy with a hairy or papillose callus distally, column short, stout, with long foot, pollinia 4, in two compressed pairs. Flowers often short-lived.



Figure 4.1441 (above) *Thrixspermum acutilobum* is a small species known from Sumatra and Java (Grower: Mary Gerritsen).

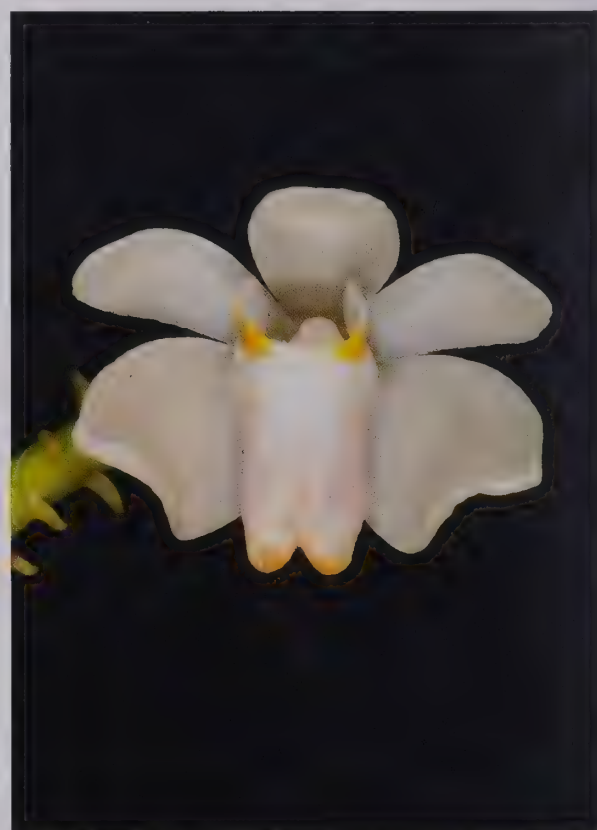
THRIXSPERMUM***Thrixspermum formosanum*** (Hayata) Schltr.**Publication:** *Repert. Spec. Nov. Regni Veg. Beih.* 4: 273 (1919)**Etymology:** From Formosa (Taiwan).**Homotypic synonyms:** *Sarcochilus formosanus* Hayata.**Heterotypic synonyms:** *Dendrocolla pricei* Rolfe, *Pteroceras pricei* (Rolfe) Aver., *Thrixspermum pricei* (Rolfe) Schltr., *Thrixspermum sasaoi* Masam.**Morphology:** *Plant* 6–12 cm wide, stem 2–4 cm long, usually single, leaves several in number. *Leaf* 3–6 cm long by 0.4–0.8 cm wide, conduplicate at base, linear to ligulate, apex acute, lamina leathery, fleshy, rigid, minutely spotted with purplish towards base and ventrally. *Inflorescence* a raceme, 4–6 cm in length, filiform, thickened towards apex, sub-erect to horizontal, flowers with subtending bracts. *Flower* 1–1.5 cm wide, 1–2 open simultaneously, many in number, successive, resupinate, fragrant. Flowers fugacious, but an individual inflorescence can have flowers for many months.**Range, elevation and habitat:** *Thrixspermum formosanum* has an unusual distribution, being found in central and southern Taiwan, Yunnan province in China, and Quang Binh province in Vietnam, at elevations from 500–1500 m. It grows as a canopy epiphyte on smaller branches without moss in moist, lower montane forest. In Vietnam, this species blooms between March and May (L. Averyanov, pers. comms., 2012); here, the summers are rainy, with temperatures of 20–25 °C (68–77 °F), and the winters dry, but very humid, with temperatures of 10–15 °C (50–59 °F). In Taiwan, it blooms in February and March. Conservation status unknown.**Culture recommendations:** *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture; the roots require good air circulation and dislike continuous moisture. *Temperature* intermediate. *Light* medium shade. *Watering* water frequently, but allow to dry slightly between watering. During the winter, reduce watering frequency. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, reducing somewhat in winter.**Comments:** The charming *Thrixspermum formosanum* is one of the more available species in this diverse genus, but it cannot be regarded as commonly grown. The smallish flowers are pleasantly fragrant, but alas fleeting, lasting less than a day. Fortunately, a mature plant may bear several simultaneous and long-lived inflorescences, each bearing one or two blooms successively over a period of months, generally between late autumn and early spring in cultivation.**Figure 4.1442 (above)** *Thrixspermum formosanum* in habitat, Hòa Bình province, Vietnam (Photo: Leonid Averyanov).**Figure 4.1443 (above)** The elegant flowers of *Thrixspermum formosanum* are pleasantly fragrant (Grower: Tom Mudge).



Figure 4.1444 (above) The crystalline texture of the *Thrixspermum formosanum* flower is readily apparent (Grower: Cindy Hill).

Figure 4.1445 (below) A flowering *Thrixspermum formosanum* plant mounted on a display branch (Grower: Cindy Hill).

THRIXSPERMUM

Thrixspermum merguense (Hook.f.) Kuntze

Publication: *Revis. Gen. Pl.* 2: 682 (1891)

Etymology: From Mergui, an archipelago located in the southernmost part of Myanmar, where this species was originally collected.

Homotypic synonyms: *Dendrocolia merguensis* (Hook.f.) Ridl., *Sarcochilus merguensis* Hook.f.

Heterotypic synonyms: *Ascochilus pulvinatus* Guillaumin, *Sarcochilus kusukusensis* Hayata, *Thrixspermum bicristatum* Ames, *Thrixspermum comans* J.J.Sm., *Thrixspermum comans* var. *bicristatum* (Ames) L.O.Williams, *Thrixspermum kusukusense* (Hayata) Schltr.

Morphology: *Plant* small, semi-pendulous, occasionally branching at base. *Stem* short, 2–3 cm, leaves to 7 in number. *Leaf* 2–5 cm long by 0.5–0.7 cm wide, contracted at base, narrowly lanceolate, apex obtuse, unequally bilobed, lamina leathery, thick, fleshy. *Inflorescence* a congested raceme, to 5 cm in length, one to several in number, sub-erect to spreading. *Flower* to 0.8 cm wide, non-resupinate, several, singly successive, widely spreading, outer surface of sepals minutely papillose, lip three-lobed, side-lobes erect, but slightly incurved, mid-lobe with 3 mounds of short, white hairs, fugacious. Flowers pale yellow to brownish in colour.

Range, elevation and habitat: A widespread species, *Thrixspermum merguense* occurs in Myanmar, Peninsular Malaysia, Thailand, Cambodia, Laos, Vietnam, Java, Sumatra, central and southern Taiwan and the Philippines (Laguna and Rizal provinces on Luzon, Agusan province on Mindanao, and Leyte). It grows as an epiphyte in scrub at elevations up to 750 m, generally in brightly lit situations. It is not considered threatened.

Culture: *Substrate* mount on cork bark, rough-barked hardwood, rough wood shingles or possibly tree fern, using little or no New Zealand *Sphagnum* moss around the roots. This species is not well-suited to potted culture; the roots require good air circulation and dislike continuous moisture. *Temperature* warm. *Light* bright diffused to light shade. *Watering* water frequently, but allow to dry slightly between waterings. During long periods of overcast winter weather, reduce watering frequency. *Humidity* high. *Air movement* good to brisk. *Propagation* by seed, rarely by division. *Fertilise* at 1/4 strength weekly, reducing somewhat in winter.

Comments: This tiny gem has small, cute, crystalline flowers with a delightful, fuzzy lip that bears red stripes at its base. It flowers frequently, and though the blooms are short-lived, one-day wonders, they may occur at any time of year. *Thrixspermum merguense* belongs to section *Dendrocolla*, a large group within this genus. An uncommon species in cultivation, it is a desirable addition to any collection of miniature orchids.



Figure 4.1446 (above) The cute little flowers of *Thrixspermum merguense* have a striped, fuzzy lip (Grower: White Oak Orchids).

Tolumnia Raf.

Publication: Rafinesque, C. S., 1837, *Fl. Tellur.* 2: 101

Subfamily: Epidendroideae
Tribe: Maxillarieae
Subtribe: Oncidiinae

Type species: *Tolumnia pulchella* (Hook.) Raf., 1837, *Fl. Tellur.* 2: 101.

Etymology: Probably named for Tolumnius, a Rutulian mentioned by Virgil in his epic narrative, *The Aeneid*, a founding work of literature in western civilisation. The author of the genus, Rafinesque, often used obscure characters for his dedications. He enjoyed naming plants after nymphs from Greco-Roman mythology (Bernhardt, 2008).

Heterotypic synonyms: *Antillanorchis* (C.Wright ex Griseb.) Garay, *Braasiella* Braem, Lückel & Rüssmann, *Gudrunia* Braem, *Hispaniella* Braem, *Jamaiciella* Braem, *Olgasis* Raf., *Xaritonia* Raf.

Profile: A genus of over 25 epiphytic, lithophytic or terrestrial species from southern Florida and the West Indies. They grow in bright situations at elevations between sea level and 1500 metres.

General morphology: *Plant* clumping to repent, sympodial, growths usually fan-shaped, leaves usually imbricated at base, roots numerous, filiform. *Pseudobulb* small or rudimentary, completely obscured by leaf bases if present, leaves several in number (rarely 1). *Leaf* conduplicate, usually bilaterally compressed, usually dorsally sulcate and ventrally keeled, leathery, rigid. *Inflorescence* a raceme or panicle, long pedunculate, slender, terete, sometimes re-blooming, lateral from between the leaves. *Flower* showy, resupinate, dorsal sepals and petals free, lateral sepals fused or rarely free, petals clawed, lip three-lobed, column erect without foot, with conspicuous wings, pollinia 2 on a common stipe, and viscidium minute.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, but probably not tree fern, using little or no New Zealand *Sphagnum* moss around the roots. These species can be potted in tiny to small pots in a fine to medium bark mix, perhaps avoiding moss since the roots should not be kept moist. *Temperature* dependent upon species. *Light* light shade to medium shade. *Watering* water frequently, but ensure that plants dry out briefly and completely between waterings. These species do not like to stay constantly moist. *Humidity* high. *Air movement* brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. *Tolumnia* are susceptible to scale insects and mealybug infestations, these pests often hiding in the leaf axils, as well as to aphids and scale insects on the flowers and along the inflorescences. Inspect plants often and treat accordingly, being sure to avoid petroleum-based insecticides as toxicity has been reported.



Figure 4.1447 (above left) *Tolumnia pulchella* typical colour form. This is the type species of the genus (Grower: Cordelia Wong).

Figure 4.1448 (above right) *Tolumnia pulchella* 'Caribbean Snow', Judges' Commendation, American Orchid Society. This unusual variant has almost entirely white blooms that are otherwise similar to the typical form (Grower: Barbara van der Stoep).

TOLUMNIA

Tolumnia calochila (Cogn.) Braem

Publication: *Orchidee (Hamburg)* 37: 58 (1986)

Etymology: From the Greek *calos* (beautiful) and *cheilos* (lip), referring to the bright yellow, fringed labellum.

Homotypic synonym: *Oncidium calochilum* Cogn.

Morphology: Plant to 10 cm tall, rarely to 14 cm, clumping, rarely branching, erect. *Pseudobulb* to 0.5 cm long, cylindric, leaf, apical, to 4 in number. *Leaf* 5–14 cm long by 0.3–0.5 cm wide, terete, apex acute, lamina erect to sub-erect, leathery, rigid, dorsally sulcate, often suffused with purple. *Inflorescence* a raceme, to 10 cm in length, rarely to 22 cm, erect. *Flower* 2–3.5 cm tall, 1–6 in number, successive to simultaneous, widely spreading, of nearly uniform colour, lateral sepals connate, notched at the apex, margin of lip fringed, column winged, minutely puberulent, pedicel and ovary to 1.4 cm in length.

Range, elevation and habitat: The Caribbean *Tolumnia calochila* occurs in both Haiti and the Dominican Republic at elevations from near sea level to 1500 m. It can be locally common, growing in partial shade on twigs and low trees in rather dry scrub with desert-like conditions, and on medium to large trees in warm, semi-arid coastal regions. It receives heavy nighttime condensation during the dry winters. This species can flower in most months of the year.

Culture recommendations: See general notes for the genus. *Temperature* warm.

Comments: *Tolumnia calochila*, with its elongate, brilliant yellow flowers that bear a jaggedly fringed lip, has one of the most distinctive plants in the genus. Each plant consists of 3–4 terete leaves rather unlike the flattened, essentially 2-sided leaves that are characteristic of most *Tolumnia*. This species is not common in collections, but it is nonetheless available. The highly rewarding *T. calochila* blooms in early to mid-summer in cultivation.



Figure 4.1449 (above) *Tolumnia calochila* flowers have a wonderfully fringed lip (Grower: J & L Orchids).



Figure 4.1450 (above) The flower of a different *Tolumnia calochila* clone (Grower: Andy's Orchids).

TOLUMNIA

Tolumnia gauntlettii (Withner & H.P.Jesup) Nir

Publication: *Lindleyana* 9: 149 (1994)

Etymology: Named in honour of Noel Gauntlett (1921–2001), of Kingston Jamaica, engineer and orchid enthusiast with an interest in Jamaican orchid species.

Homotypic synonyms: *Jamaiciella gauntlettii* (Withner & H.P.Jesup) Braem, *Olgasis gauntlettii* (Withner & H.P.Jesup) Braem, *Oncidium gauntlettii* Withner & H.P.Jesup.

Morphology: *Plant* to 5 cm tall, growths single to clustered, fan-shaped, leaves 3–4 in number. *Leaf* 2.5–4 cm long by up to 0.5 cm wide, linear to falcate, apex acute, lamina dorsally narrowly sulcate, fleshy, leathery, rigid, margins slightly rough to smooth. *Inflorescence* a raceme, to 10 cm in length, erect to sub-erect. *Flower* 1.3–2 cm tall, 1–3 in number, rarely to 6, simultaneous, widely spreading, lateral sepals fused for nearly entire length, lip three-lobed, margin serrulate to undulate, callus not prominent. The pink colouration on the lip varies from pale lavender pink to deep lavender.

Range, elevation and habitat: A rare Jamaican endemic, *Tolumnia gauntlettii* grows on shrubs and tree trunks in fairly wet, dense forest along ridges near rivers, and in deep, shaded ravines. It occurs at elevations around 500 m. It blooms between September and April. Conservation status unknown.

Culture recommendations: *Temperature* warm.

Comments: This little charmer is quite rare in cultivation and not likely to be easily acquired. It is a lovely species, usually with soft pink flowers, although lavender forms are known. *Tolumnia gauntlettii* generally has just two flowers, borne on a relatively short spike for the genus. It is hoped that growers will propagate their plants so that more collectors can enjoy this rarity. Flowering tends to occur during the autumn months in cultivation.



Figure 4.1451 (above) *Tolumnia gauntlettii* generally has charming flower of soft pink (Grower: Andy's Orchids).

TOLUMNIA

Tolumnia guianensis (Aubl.) Braem

Publication: *Orchidee* (Hamburg) 37: 58 (1986)

Etymology: The Guianas (a region of South America) and *ensis* (from), possibly named in the belief that this species originated there.

Homotypic synonyms: *Ophrys guianensis* Aubl., *Oncidium guianense* (Aubl.) Garay.

Heterotypic synonyms: *Oncidium desertorum* Nash ex Withner, *Oncidium desertorum* var. *alborubrum* (Moir & A.D.Hawkes) Garay, *Oncidium desertorum* var. *album* (Moir & A.D.Hawkes) Garay, *Oncidium desertorum* var. *aureorubrum* Moir, *Oncidium guianense* var. *alborubrum* (Moir & A.D.Hawkes) K.S.Wilson, *Oncidium guianense* var. *album* (Moir & A.D.Hawkes) K.S.Wilson, *Oncidium guianense* var. *aureorubrum* (Moir) K.S.Wilson, *Oncidium guianense* subsp. *alborubrum* (Moir & A.D.Hawkes) Withner, *Oncidium guianense* f. *album* (Moir & A.D.Hawkes) Withner, *Oncidium guianense* f. *aureorubrum* (Moir) Withner, *Oncidium guttatum* var. *intermedium* (Knowles & Westc.) Rchb.f., *Oncidium intermedium* Bertero ex Spreng., *Oncidium intermedium* var. *alborubrum* Moir & A.D.Hawkes, *Oncidium intermedium* var. *album* Moir & A.D.Hawkes, *Oncidium lemonianum* Lindl., *Oncidium luridum* var. *intermedium* (Knowles & Westc.) Lindl., *Ophrys aloidea* Poir, *Tolumnia intermedia* (Bertero ex Spreng.) H.Dietr, *Tolumnia lemoniana* (Lindl.) Braem.

Morphology: Plant to 10 cm tall per individual growth, clumping to shortly repent, branching, fan-shaped. *Pseudobulb* extremely reduced, completely obscured by imbricating leaf bases, leaves 5–6 in number. *Leaf* to 10 cm long by 1.8 cm wide, falcate to lanceolate, apex acute, lamina bilaterally compressed, green to purple. *Inflorescence* a few-branched panicle, to 40 cm in length, erect to descending, green to purple in colour. *Flower* to 3 cm wide, to 20 in number, sometimes more, basically simultaneous, widely spreading. Flowers variable in colour.

Range, elevation and habitat: *Tolumnia guianensis* grows on the island of Hispaniola in arid, semi-arid and moist areas of dry and humid subtropical forest, from elevations near sea level to 700 m, but occasionally to 1130 m. It also grows in heavy shade on cultivated orange trees. The colour varieties *alborubra* and *aureorubra* have only been found in drier habitats at lower elevations. Flowering generally occurs between March and June in nature.

Culture recommendations: *Temperature* warm to intermediate.

Comments: Known for many years as *Oncidium desertorum*, this species has been popular since it was first introduced. The flowers are highly variable, as evidenced by the list of synonyms, but occur in three basic forms. The nominate variety has nearly uniformly coloured, chrome yellow flowers of a most pleasing shape; the flowers appear nearly peloric, with petals that are similar to the large, skirt-like lip. *Tolumnia guianensis* var. *aureorubra* has



Figure 4.1452 (above) *Tolumnia guianensis* produces profuse blooms attractive in form and colour (Grower: Brad Cotten).



Figure 4.1453 (above) The handsome *Tolumnia guianensis* flower in detail (Grower: Andy's Orchids).

TOLUMNIA

yellow petals and a reddish lip, whereas var. *alborubra* has white petals, the bases of which can be reddish to brown. The blooms of the latter two varieties are not generally as full in shape as those of the typical form; even so, all forms are highly desirable and collectible. This species has a limited bloom period in nature, but plants have been seen flowering in most months in cultivation.



Figure 4.1454 (above left) *Tolumnia guianensis* var. *aureorubra* (Grower: Andy's Orchids).

Figure 4.1455 (above right) *Tolumnia guianensis* var. *alborubra* with red lips (Grower: Kay Rinaman).

Figure 4.1456 (below) *Tolumnia guianensis* var. *alborubra* with a brownish lip (Grower: Andy's Orchids).

TOLUMNIA

Tolumnia henekenii (M.R.Schomb. ex Lindl.) Nir

Publication: *Lindleyana* 9: 149 (1994)

Etymology: Named for the British army officer, Colonel T. S. Heneken, who studied the geology of the island of San Domingo (Hispaniola) and evaluated its economic potential. He was also interested in and collected fossils, coral and plants.

Homotypic synonyms: *Hispaniella henekenii* (M.R.Schomb. ex Lindl.) Braem, *Oncidium henekenii* M.R.Schomb. ex Lindl.

Morphology: *Plant* 3–4 cm tall per individual growth, clumping to slowly repent, branching, fan-shaped. *Pseudobulb* rudimentary, leaves few in number. *Leaf* to 4 cm long by 0.7 cm wide, linear-lanceolate, falcate, apex obtuse to sub-acute, lamina stiff, leathery, often suffused with purple, margins denticulate. *Inflorescence* a raceme, rarely one-branched, to 15 cm in length, elongating between flowers, erect to sub-erect. *Flower* 1.5–2 cm tall, to 15 in number, successive, widely spreading, pubescent.

Range, elevation and habitat: *Tolumnia henekenii* grows in southwestern Hispaniola as an epiphyte in dry, subtropical forest and desert regions. It is exceedingly rare in nature, and threatened with extinction due to severe habitat degradation. It is thought to have been extirpated in Haiti.

Culture recommendations: *Temperature* warm.

Comments: One of the best examples of floral mimicry known to the authors, this strange and wonderful little flower really does look more like a bee than a flower, possibly even more so than those of many of the *Ophrys* of Europe. *Tolumnia henekenii* used to be more common in cultivation than it is today, and commercial propagation may become vital to securing its place in collections. This species is extremely rare in nature, verging on extinction, so every effort should be taken to perpetuate this treasure in cultivation. It has been said that locals in the Dominican Republic refer to it as *cacatica*, which means “little tarantula”. This species tends to flower between mid-spring and late summer in cultivation.

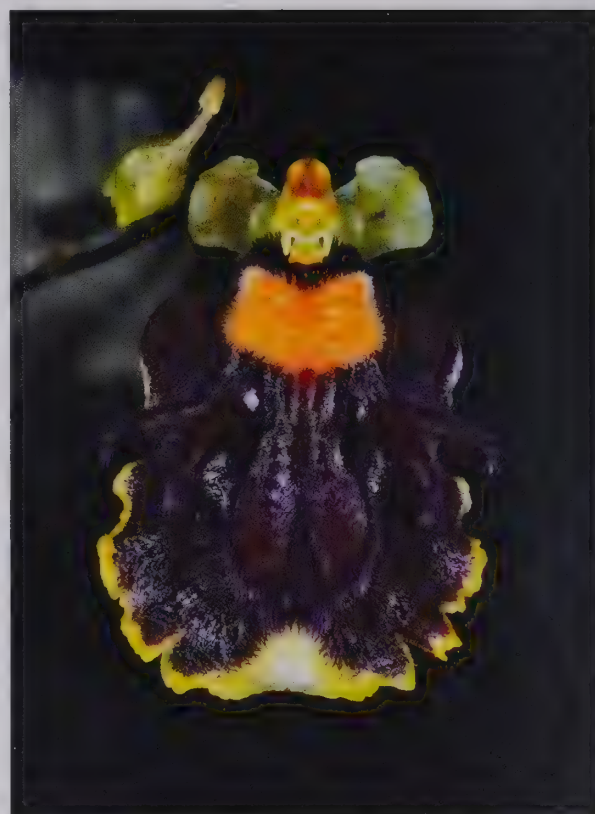


Figure 4.1457 (above) The extremely rare *Tolumnia henekenii* has a truly insect like bloom (Grower: Ron Parsons).



Figure 4.1458 (above) The flower of *Tolumnia henekenii*, as curious as it is sombly beautiful (Grower: Ron Parsons).

TOLUMNIA

Tolumnia variegata (Sw.) Braem

Publication: *Orchidee (Hamburg)* 37: 59 (1986)

Etymology: From the Latin *variegatus* (multi-coloured, irregularly spotted), in reference to the colourful flowers.

Homotypic synonyms: *Cymbidium variegatum* (Sw.) Sw., *Epidendrum variegatum* Sw., *Oncidium variegatum* (Sw.) Sw., Kongl.

Heterotypic synonyms: *Epidendrum carinatum* Vahl in H. West, nom. illeg., *Epidendrum haseltonianum* A.D. Hawkes, *Oncidium furcyense* Moir, *Oncidium leiboldii* var. *album* Moir & A.D. Hawkes, *Oncidium leiboldii* var. *majus* Moir & A.D. Hawkes, *Oncidium variegatum* var. *purpureum* Moir & A.D. Hawkes, *Oncidium variegatum* var. *roseum* Moir & A.D. Hawkes, *Oncidium variegatum* f. *furcyense* (Moir) Withner, *Oncidium variegatum* f. *roseum* (Moir & A.D. Hawkes) Withner, *Oncidium variegatum* f. *varvelum* (Moir) Withner, *Oncidium varvelum* Moir, *Tolumnia borinquensis* Saulea & Ragan.

Morphology: Plant 4–15 cm tall per individual growth, repent, growths spaced 1.5–7 cm apart along rhizome, fan-shaped, leaves 4–6 in number. Leaf to 15 cm long, rarely longer, by up to 1.1 cm wide, linear-lanceolate, falcate, apex acute, acuminate, lamina short and stiff to attenuate and flexible, margins serrated. Inflorescence a raceme to few-branched panicle, to 65 cm in length, erect to sub-erect, peduncle terete, but rachis often angular. Flower 1–2.5 cm tall, many in number, several to many flowers open simultaneously, dorsal sepal concave, lateral sepals connate for length. Flowers vary in colour from white to occasionally lavender, patterns highly variable.

Range, elevation and habitat: Endemic to Hispaniola, *Tolumnia variegata* grows as an epiphyte on twigs, shrubs and small trees in habitats described as arid to very wet, at elevations from near sea level to 2000 m. This relatively common species can flower at any time of year.

Culture recommendations: Temperature warm to intermediate.

Comments: This fine taxon is one of the most commonly available species in the genus, and it is a pleasure to own. When *Tolumnia variegata* flowers, it does so superbly, producing a disproportionately large number of colourful blooms. Moreover, it can flower at any time of year, sometimes more than once. The plants are quite attractive, with small, leathery fans of leaves, and particularly easy to propagate due to the long rhizomes between growths, allowing for ready separation. However, a plant allowed to grow to specimen size is a wondrous sight in full bloom.



Figure 4.1459 (above) The bright and cheerful flowers of *Tolumnia variegata* (Grower: Judy Carney).



Figure 4.1460 (above) A cascade of *Tolumnia variegata* flowers is a wonderful sight (Grower: Judy Carney).

TOLUMNIA

Tolumnia velutina (Lindl. & Paxton) Braem

Publication: *Orchidee (Hamburg)* 37: 59 (1986)

Etymology: From Latin *velutinus* (velvety), referring to the fine hairs on the flower.

Homotypic synonyms: *Oncidium variegatum* subsp. *velutinum* (Lindl. & Paxton) Withner, *Oncidium variegatum* var. *velutinum* (Lindl. & Paxton) Griseb., *Oncidium velutinum* Lindl. & Paxton.

Heterotypic synonyms: *Oncidium variegatum* f. *purpureum* (Moir) Withner, *Oncidium velutinum* var. *purpureum* Moir, nom. inval.

Morphology: *Plant* 1.5–8 cm tall per individual growth, repent, growths spaced to 8 cm apart along slender rhizome, fan-shaped. *Pseudobulb* rudimentary, leaves to 6 in number. *Leaf* to 8 cm long by up to 1 cm wide, linear to linear-lanceolate to lanceolate, apex acute, lamina rigid, leathery, margin dentate. *Inflorescence* a raceme to few branched panicle, to 50 cm in length, sub-erect to erect, green to purple in colour. *Flower* 1.5–2 cm tall, several in number, simultaneous, widely spreading, lateral sepals connate for length, concave, lip three-lobed, velvety, pedicel and ovary to 1.5 cm long.

Range, elevation and habitat: *Tolumnia velutina* occurs in Hispaniola and Cuba. There are collection records from Cuba at elevations of 300–1250 m, with little habitat detail other than that it grows epiphytically in trees. No confirmed bloom-time records could be found, but it is likely that this species may bloom at any time. No conservation status information was located.

Culture recommendations: *Temperature* warm to intermediate.

Comments: Another relatively common and available species of *Tolumnia*, *T. velutina* has enchanting clusters of lavender blooms on long inflorescences. In common with *T. variegata*, *T. velutina* has a long rhizome between growths, allowing for easy separation and propagation. If permitted to develop, it will grow into a prolific, well-branched specimen of great beauty. In cultivation, flowering may occur at any time.



Figure 4.1461 (above) The enchanting *Tolumnia velutina* flower is bright and finely coloured (Grower: Judy Carney).



Figure 4.1462 (above) *Tolumnia velutina* may bloom profusely (Grower: Judy Carney).

Trias Lindl.

Publication: Lindley, J., 1830, *Gen. Sp. Orchid. Pl.*: 60

Subfamily: Epidendroideae

Tribe: Podochileae

Subtribe: Bulbophyllinae

Type species: *Trias oblonga* Lindl., 1830, *Gen. Sp. Orchid. Pl.*: 60.

Etymology: From the Greek *trias* (three), in reference to the triangular flowers.

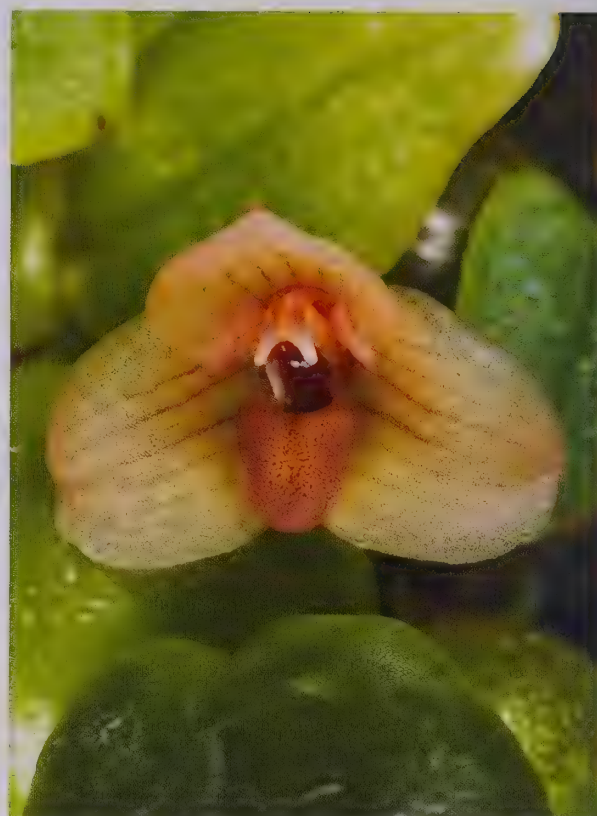
Profile: A genus of approximately 12 epiphytic species from Assam, Bangladesh, northern Indian (Himalayas), Thailand, Laos, Myanmar, Vietnam, the Andaman Islands and Borneo.

General morphology *Plant* sympodial, small, clumping to repent, much branched, sometimes mat-forming. *Pseudobulb* small, ovoid to subglobose, unifoliate. *Inflorescence* a raceme, short, with tubular bracts, borne laterally from base of pseudobulb. *Flower* proportionately large, single, resupinate, often almost triangular, sepals fleshy, similar, spreading, lateral sepals connate at base and adnate to column foot, petals small, lip narrow, fleshy, mobile, anther often elongated, 2 chambered, pollinia 4.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, using little or no New Zealand *Sphagnum* moss around the roots. These species are not suited to potted culture; the plants have a repent habit, and the roots are shallow and dislike continuous moisture. It may be possible to grow this species in very shallow bulb pans, although the authors have not seen them grown in this fashion. *Temperature* dependent upon species. *Light* generally medium shade. *Watering* water frequently, ensuring that plants dry out briefly between waterings. All taxa require excellent drainage. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly.



Figure 4.1463 (above) The cute, globose pseudobulbs and fleshy leaves of *Trias intermedia* crowd their mount (Grower: Howard Gunn).

TRIAS***Trias intermedia*** Seidenf. & Smitinand**Publication:** *Orch. Thail. (Prelim. List)*: 809 (1965)**Etymology:** From the Latin *intermedia* (between, intermediate), with characteristics intermediate between two species.**Morphology:** *Plant* to 2 cm tall per individual growth, clumping to repent, pseudobulbs to 1.2 cm apart along rhizome, branching, mat-forming. *Pseudobulb* to 1.5 cm tall by 1.5–2 cm wide, globose to subglobose, slightly to distinctly compressed, finely rugose, green to reddish brown in colour. *Leaf* to 2.5 cm long by up to 1.4 cm wide, nearly sessile, broadly ovate, apex obtuse, lamina slightly retuse, usually spreading, thick, fleshy, leathery, rigid, minutely pitted, slightly bluish-green in colour. *Inflorescence* a raceme, peduncle 0.5 cm in length, erect, slender. *Flower* 0.5–0.8 cm wide, single, spreading, dorsal sepal hooded. Flower varies in width of striping and in colour from creamy to slightly pinkish.**Range, elevation and habitat:** *Trias intermedia* occurs in Thailand, in the northeastern, eastern and southern portions of that country. There is also a recent collection record from northern Peninsular Malaysia. It grows as an epiphyte in broadleaf evergreen forest. Flowering occurs between June and July in nature. No conservation status information was found.**Culture recommendations:** *Temperature* warm to intermediate.**Comments:** *Trias intermedia* is a wonderful little species with full, proportionately large flowers borne on a truly handsome plant. The blooms are fleshy, pinkish, with or without fine longitudinal lines, and borne on short spikes alongside a squat to globe-like pseudobulb topped with a single, fleshy leaf. When out of bloom, the plant could easily be mistaken for a *Bulbophyllum* by those not familiar with the species. This taxon forms a short rhizome between growths, so it is best mounted on a horizontal raft, or possibly in a shallow, hanging basket. In cultivation, flowering tends to occur between mid-autumn and late winter.**Figure 4.1464 (above)** *Trias intermedia* bears fleshy flowers of a pinkish colour (Grower: Howard Gunn).**Figure 4.1465 (above)** The flower of *Trias intermedia* may be up to 0.8 centimetres wide (Grower: Howard Gunn).

TRIAS

Trias oblonga Lindl.

Publication: *Gen. Sp. Orchid. Pl.*: 60 (1830)

Etymology: From the Latin *oblongus* (oblong, with blunt ends), possibly a reference to the pseudobulbs.

Homotypic synonym: *Bulbophyllum oblongum* (Lindl.) Rchb.f.

Heterotypic synonyms: *Bulbophyllum burkillii* Gage, *Bulbophyllum moulmeinense* Rchb.f., *Dendrobium tripterum* Wall. ex Hook.f., *Trias ovata* Lindl.

Morphology: *Plant* 3–4 cm tall, clumping to shortly repent. *Pseudobulb* to 2.5 cm tall by up to 2 cm wide, angled to ovoid, rugose. *Leaf* to 3.5 cm long by 2 cm wide, sessile, elliptic to oblong, apex obtuse, lamina sub-erect to somewhat spreading, fleshy, leathery, lightly rugose. *Inflorescence* a raceme, peduncle 1.6–2.5 cm tall, erect to sub-erect. *Flower* 1.6 to 2.5 cm in diameter, single, spreading widely, sharply triangular, sepal apices pointed.

Range, elevation and habitat: *Trias oblonga* occurs in India, Bangladesh, Myanmar and northern and southern Thailand. Plants grow at middle elevations in seasonally wet, tropical evergreen forest. In Myanmar, it has been found growing on mango trees. The plants tend to bloom in spring in nature, but in Thailand, flowering occurs in August and September. No information on its conservation status was found.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate.

Comments: *Trias oblonga* seems to be rare in collections in the United States, which is surprising given its fine features; the flowers have a stunning, triangular outline, and close examination reveals that each sepal is triangular also. Moreover, the plant itself is beautiful, reminiscent of *T. intermedia*, albeit somewhat larger. In terms of culture, this species should present no problems, but it would favour mounting, either horizontally or vertically. In cultivation, this species tends to flower in the spring.



Figure 4.1466 (above) The triangular flower of *Trias oblonga* (Grower: Gene Monnier/JEM Orchids).



Figure 4.1467 (above) The diminutive *Trias oblonga* is uncommon in collections (Photo: Gary Yong Gee).

TRIAS

Trias picta (E.C.Parish & Rchb.f.) C.S.P.Parish ex Hemsl.

Publication: *Gard. Chron.* 18: 427 (1882)

Etymology: From the Latin *picta* (brightly decorated, painted), referring to the colourful flower.

Homotypic synonym: *Bulbophyllum pictum* E.C.Parish & Rchb.f.

Morphology: *Plant* to 7.5 cm tall, rarely larger, clumping to shortly repent, growths to 1.5 cm apart along rhizome. *Pseudobulb* 2 cm tall by 2.2 cm wide, ovoid to globose to pyriform, rugose. *Leaf* to 7 cm long by 2.5 cm wide, shortly petiolate, conduplicate at base, ovate to elliptic to lanceolate, apex acute, lamina sub-erect to spreading, leathery, fleshy. *Inflorescence* a raceme, peduncle to 4 cm long including pedicel, slender, erect to sub-erect. *Flower* to 2 cm in diameter, single, basically triangular in outline, apices of segments rounded, sepals verrucose, petals papillose, lip thick, fleshy.

Range, elevation and habitat: *Trias picta* occurs in India, Myanmar and Thailand, where it grows as an epiphyte at elevations near 1000 m in seasonally wet, subtropical evergreen forest. This species flowers between November and December in nature. No conservation status was found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: A most charming species, and one that should certainly be more widely grown, *Trias picta* has wonderful, symmetrical flowers with a beautiful, full shape and bumpy texture. A minor drawback lies in their unpleasant smell, though this smell is not terribly pervasive. As with the previous two species, *T. picta* is a handsome plant. It typically flowers between early to mid-spring in cultivation.



Figure 4.1468 (above) The flower of *Trias picta* is attractive, though slightly malodorous (Grower: Judy Carney).

Figure 4.1469 (facing page) The flower of *Trias* cf. *picta* 'Gene Monnier'. This plant may prove not to represent that species (Grower: JEM Orchids).



Trichocentrum Poepp. & Endl.

Publication: Poeppig, E. F., & Endlicher, S. F. L., 1836, *Nov. Gen. Sp. Pl.* 2: 11

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae

Type species: *Trichocentrum pulchrum* Poepp. & Endl., 1836, *Nov. Gen. Sp. Pl.* 2: 11.

Etymology: From the Greek *trichos* (hair) and *kentron* (spur), referring to the slender spur of the type species.

Heterotypic synonyms: *Acoidium* Lindl., *Cohnia* Rchb.f., nom. illeg., *Cohniella* Pfitzer, *Lophiarella* Szlach., Mytnik & Romowicz, *Lophiaris* Raf., *Stilifolium* König & D. Pongratz.

Profile: A recently re-defined genus of approximately 65 epiphytic, rarely lithophytic, species from southern Florida, many of the Caribbean islands, Central America and most of tropical and subtropical South America.

General morphology: *Plant* sympodial, small to large, clustered, branching. *Pseudobulb* usually much reduced, generally laterally flattened, subtending bracts at base, leaf apical, one, rarely two. *Leaf* proportionately large, broadly elliptic to ovate-lanceolate (dorsoventrally flattened) to long-terete, leathery, often fleshy. *Inflorescence* a raceme or panicle, 1 to 2 simultaneous inflorescences, lateral from base of pseudobulb. *Flower* tiny to proportionately large, one to many in number, resupinate, petals and sepals subsimilar, free, spreading, lip entire or three-lobed, with or without short spur, if spurred, joined to column at base, column often apical, wings on side of stigma, anther often minutely papillose, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough-barked hardwood or rough wood shingles, but probably not tree fern, generally using little or no New Zealand *Sphagnum* moss around the roots. The authors rarely see any of the smaller *Trichocentrum* species cultivated in pots, but it is possible to do so using an open, fast-draining bark mix. The roots of *Trichocentrum* require good air circulation and dislike continuous moisture, so it is best to grow these plants on mounts. *Temperature* dependent upon species. *Light* dependent upon species. *Watering* water frequently, but allow to dry briefly between waterings. If plants are subjected to cooler temperatures during the winter, reduce watering frequency. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, reducing frequency during winter.

Comments: The genus *Trichocentrum* was relatively recently expanded to include *Lophiaris* (the former mule-ear *Oncidium*) and *Cohniella* (the rat-tail *Oncidium*), but this classification is not accepted by all. *Trichocentrum*, as previously defined, included species with a single to few-flowered raceme, and often showy, proportionately large, spurred blooms. The plant habit of those species originally classified as *Lophiaris* is similar, but the flowers are spurless and borne in a panicle. Those formerly included in *Cohniella* have elongate, terete leaves, with spurless flowers also borne in a panicle.



Figure 4.1470 (above) *Trichocentrum teaguei*, a rare miniature from Bolivia, is named in honour of Walter Teague (Grower: Walter Teague).

TRICHOCENTRUM***Trichocentrum albococcineum* Linden**

Publication: *Ann. Hort. Belge Étrangère* 15: 103 (1865)

Etymology: From the Latin *albus* (white) and *coccineus* (crimson, scarlet), possibly referring to the often bicoloured lip of this species.

Heterotypic synonyms: *Trichocentrum albopurpureum* Rchb.f. ex Barb. Rodr., *Trichocentrum albopurpureum* var. *striatum* L. Linden & Rodigas, *Trichocentrum amazonicum* Barb. Rodr., *Trichocentrum atropurpureum* Linden & Rchb.f.

Morphology: Plant to 14 cm tall, clumping, occasionally branching, erect. *Pseudobulb* nearly absent to 1 cm tall by 0.7 cm wide, elliptic-ovoid, unifoliate. *Leaf* to 14 cm long by 4 cm wide, sessile, lanceolate to oblong, apex acute, lamina erect to sub-erect, rigid, spotted and/or often suffused with reddish or purple. *Inflorescence* a raceme, to 7 cm in length, elongating gradually between flowers, spreading to descending, borne laterally from recently matured growth. *Flower* 3.5–5 cm tall, 1–5 in number, successive, spreading widely, fragrant. Flowers vary in overall shape, posture of segments and intensity of colour. Petals and sepals vary from brown to greenish or greenish with brown overlay, and lip varies from solid, pinkish purple to white with pinkish purple blotches on either side of base.

Range, elevation and habitat: This species occurs in Brazil (states of Pará, Amazonas, Rondônia, Mato Grosso, Goiás and Distrito Federal), Peru (departments of Amazonas and Cajamarca) and Bolivia (department of Santa Cruz) over an elevational range of 280–1200 m. *Trichocentrum albococcineum* grows as an epiphyte on the trunks of rough-barked trees, often near rivers in warm, low to mid-elevation montane forests. There, it rains throughout the year, but is generally drier from June to September. Flowering often occurs between July and October, and between December and March. Plants may sometimes grow in full sun. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate. *Light* bright diffuse to light shade.

Comments: *Trichocentrum albococcineum* is one of the larger-flowered species among the original members of this genus, but it is not often seen in collections. The prominent lip is somewhat scoop-like, and variable in pattern. There is a rare variety, var. *striata*, that has stripes on the lip. The authors have not seen many examples of this beauty, but all were noted to flower between early to mid-spring in cultivation.



Figure 4.1471 (above) The infrequently seen *Trichocentrum albococcineum* (Grower: Brad Cotten).

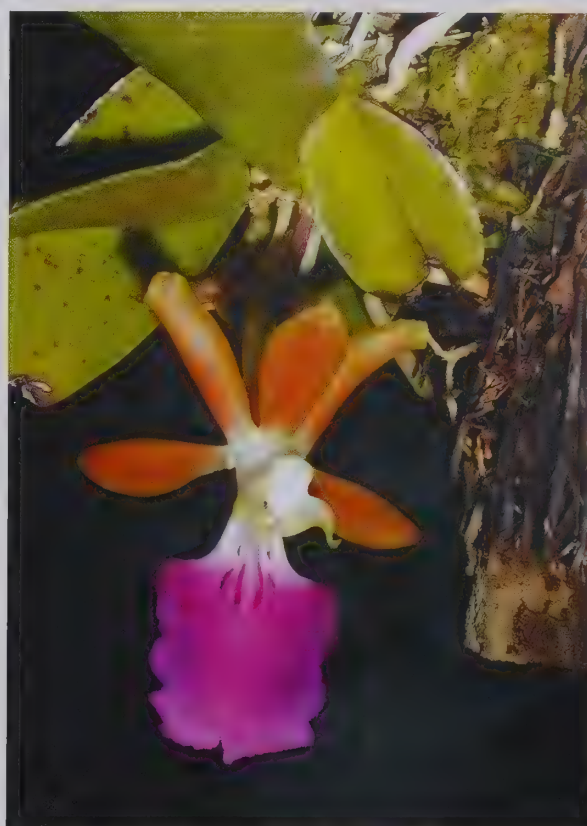


Figure 4.1472 (above) A different clone of *Trichocentrum albococcineum* (Grower and Photo: Rich Unger).

TRICHOCENTRUM

Trichocentrum longicalcaratum Rolfe

Publication: *Orchid Rev.* 4: 260 (1896)

Etymology: From the Latin *longus* (long) and *calcar* (spur), referring to the long spur of the lip.

Heterotypic synonyms: *Trichocentrum brandtiae* Kraenzlin, *Trichocentrum verruciferum* Schlechter.

Morphology: Plant to 10 cm tall, clumping, slowly branching at base, slowly creeping, erect. *Pseudobulb* tiny, to 1 cm tall by 0.7 cm wide, elliptic-ovoid, hidden by bracts, unifoliate, occasionally with second, smaller leaf. *Leaf* to 9 cm long by 3 cm wide, shortly petiolate, conduplicate at base, lanceolate to oblong, apex obtuse to acute, apiculate, lamina erect to nearly spreading, leathery, thickened, semi-flexible, spotted and/or often suffused with reddish or purple. *Inflorescence* a raceme, peduncle short, to 2.5 cm in length, 1–2 simultaneous inflorescences, horizontal to descending, lateral from recently matured growth. *Flower* to 3 cm wide, 5.5–7 cm long including spur, 2 in number, successive, resupinate, spreading widely, spur long, twice the length of lip, to 5 cm in length, slender, broader at base with upwardly curved apex, ovary pedicellate, terete at base, triquetrous distally. Flowers vary in shape from somewhat open to campanulate, and in the pattern of spotting, from virtually none to several large, maroon spots on the tepals.

Range, elevation and habitat: This species is found growing epiphytically in wet montane forest in Ecuador (provinces of Azuay, Napo and Zamora-Chinchipec) and southwestern Colombia, at elevations of approximately 900 m. It blooms in May in nature. No information about its conservation status was found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate.

Comments: There is considerable confusion in the literature regarding this species. The World Checklist lists *Trichocentrum longicalcaratum* as a synonym of *T. pulchrum*, yet it lists *T. brandtiae* as a recognised species. A series of papers by Pupulin provides some clarity. When Pupulin (1995) first revised *Trichocentrum*, his treatment of *T. longicalcaratum* was based on a single living specimen. Later, a large population of *T. longicalcaratum* was discovered in Colombia, and plants were then exported and sold as *T. brandtiae*. As Pupulin (2000) explains in his review, this was due to his own misinterpretation, and these plants were actually *T. longicalcaratum* rather than the synonymous *T. brandtiae* (Pupulin, 1998). *Trichocentrum longicalcaratum* is characterised by a smallish flower with a large, maroon basal blotch on the labellum, by sepals and petals with one to several (rarely none) large maroon spots, a densely pubescent base to the lip, and a spur that is more than twice the length of the lip. The keel of the callus



Figure 4.1473 (above) A more open flowered clone of *Trichocentrum longicalcaratum* (Grower: Marni Turkel).



Figure 4.1474 (above) A pretty, more campanulate clone of *Trichocentrum longicalcaratum* (Grower: Mary Gerritsen).

TRICHOCENTRUM

at the base of the lip of *T. longicalcaratum* also differ somewhat in shape, sometimes diverging into four keels, and the column wings are proportionately larger, with ruffled margins. In contrast, *T. pulchrum* has larger, widely spreading flowers that are usually finely spotted, also lacking a basal splotch on the labellum, with a spur is that is less than twice the length of the lip. If seen together, there is no question that *T. pulchrum* and *T. longicalcaratum* are distinct species, though they are clearly closely related.



Figure 4.1475 (above) The flower of *Trichocentrum longicalcaratum* in detail (Grower: Marni Turkel).

Figure 4.1476 (below) A different *Trichocentrum longicalcaratum* clone (Grower: Mary Gerritsen).

*TRICHOCENTRUM**Trichocentrum pfavii* Rchb.f.**Publication:** *Gard. Chron.*, n.s., 16: 70 (1881)

Etymology: Named for Rudolf Richard Pfau (?-1897), a 19th century Swiss botanist who founded a nursery in San José, Costa Rica, that sold a great variety of ornamental plants. He authored several articles about Central America and its orchids, discovering many orchid species during his extensive collections from Mexico, Costa Rica, Panama and Colombia.

Morphology: *Plant* to 8 cm tall, rarely to 12 cm, clumping, erect to sub-erect, freely branching with age. *Pseudobulb* tiny, nearly obsolete, unifoliate, rarely with a second leaf. *Leaf* to 8 cm long, occasionally to 12 cm, by 3 cm wide, sessile, conduplicate at base, elliptic-oblong, apex obtuse, lamina flat to arcuate, fleshy, slightly flexible, often suffused with reddish-purple. *Inflorescence* a raceme, 1–5 cm in length, 1–2 simultaneous inflorescences, sub-erect to descending, lateral from base of recently matured growth. *Flower* to 3 cm wide, 1–2 (rarely 3) in number, successive, widely spreading. Flowers vary in the proportions and intensity of colour, and in the size of the markings on the segments.

Range, elevation and habitat: *Trichocentrum pfavii* grows in Costa Rica (provinces of Cartago, Puntarenas and San José) and Panama (province of Chiriquí). It has been found at elevations of 650–1500 m and grows as an epiphyte on tree trunks, often near water, in pre-montane and lower montane rainforest, where it can be locally common. Flowering tends to occur between September and March in nature.

Culture recommendations: See general notes for the genus. *Temperature* intermediate. *Light* medium shade. This species should be mounted with a small amount of moss around the roots.

Comments: *Trichocentrum pfavii* is a beautiful species, and a favourite of many growers. With their truly showy flowers, particularly those forms with darker patterns, a specimen plant in full bloom is nothing short of spectacular. It is uncommon in cultivation, but plants are available in the trade with some searching. A form called *T. pfavii* var. *album*, with yellow blotching instead of the usual reddish-brown and pinkish-purple, is very rare, but stunning. In cultivation, plants usually bloom between early autumn and late winter, although flowers have also been seen in mid-summer.



Figure 4.1477 (above) A *Trichocentrum pfavii* 'San Carlos' plant in bloom (Grower: Ron Parsons).

Figure 4.1478 (facing page) *Trichocentrum pfavii* 'San Carlos' flower detail (Grower: Ron Parsons).



TRICHOCENTRUM***Trichocentrum pulchrum* Poepp. & Endl.****Publication:** *Nov. Gen. Sp.* 2: 11 (1836)**Etymology:** From the Latin *pulchrum* (beautiful), referring to the colourful flowers of this species.**Heterotypic synonyms:** *Lophiaris maculata* f. *flavovirens* (P.M.Br.) P.M.Br., *Oncidium undulatum* f. *flavovirens* P.M.Br., *Trichocentrum maculatum* Lindl., *Trichocentrum maculatum* f. *flavovirens* (P.M.Br.) P.M.Br.**Morphology:** *Plant* individual growths to 12 cm tall, clumping, occasionally branching, slowly creeping, erect. *Pseudobulb* greatly reduced, basically obsolete, hidden by bracts, unifoliate. *Leaf* to 12 cm long by 3 cm wide, oblong to linear-oblong, apex acute to obtuse, lamina sub-erect to spreading, leathery, slightly flexible, often attractively spotted with purplish red. *Inflorescence* a raceme, to 6 cm in length, 1–2 simultaneous inflorescences, horizontal to descending, lateral from recently matured growth. *Flower* to 3.5 cm wide, single, occasionally 2 simultaneous, resupinate, widely spreading, lip proportionately large, spur horizontal, parallel to ovary, to 6 cm long, lightly fragrant. Flowers vary from nearly unspotted to densely spotted, with light to dark spotting, and in terms of spotting size, background colour, from white to cream, segment width, overall shape and openness.**Range, elevation and habitat:** *Trichocentrum pulchrum* occurs in Colombia (department of Cundinamarca), Venezuela (states of Lara, Mérida, Portuguesa, Trujillo and Zulia), Ecuador (provinces of Azuay, Morona-Santiago, Pastaza and Zamora-Chinchi) and Peru (departments of Cajamarca, Cusco, Huánuco and Junin) at elevations of 720–1800 m. This epiphytic species is found high in huge trees in wet, montane forest, sometimes in trees along rivers and occasionally in cultivated coffee plantations. Flowering in nature generally occurs between June and September. Conservation status unknown, but it is likely secure.**Culture recommendations:** See general notes for the genus. *Temperature* warm to intermediate. *Light* medium shade.**Comments:** This species, the type species of the genus, certainly lives up to its specific epithet, for *Trichocentrum pulchrum* is truly beautiful. Extremely variable in all of its floral features, the colourful, scented flowers may be large or smallish, nearly flat to campanulate, full-shaped with overlapping segments or with noticeably narrower ones, white to yellow in background colour, and sparsely to densely spotted with variably sized spots. One of the more easily obtained members of the genus, it is still not common in cultivation. A close relative, *T. longicalcaratum*, has been considered synonymous with *T. pulchrum* by the World Monocot Checklist (Kew), but this is in error (see *T. longicalcaratum*). *Trichocentrum pulchrum* can bloom in almost any month of the year.**Figure 4.1479 (above)** A pair of beautiful, scented *Trichocentrum pulchrum* 'Stony Point' flowers (Grower: Marni Turkel).

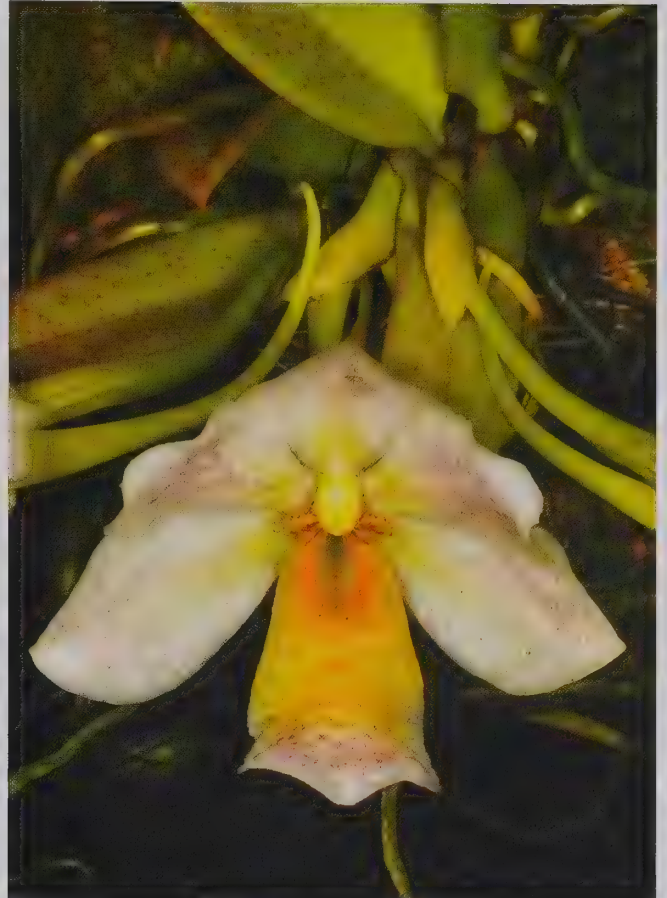


Figure 4.1480 (above) *Trichocentrum pulchrum* 'Stony Point', a large flowered clone (Grower: Marni Turkel).

Figure 4.1481 (below) *Trichocentrum pulchrum* spotted white clone (Grower: Marni Turkel).

Figure 4.1482 (above) *Trichocentrum pulchrum* clone with reduced dorsal segments (Grower: Marni Turkel).

Figure 4.1483 (below) *Trichocentrum pulchrum* yellow flowered clone (Grower: Marni Turkel).

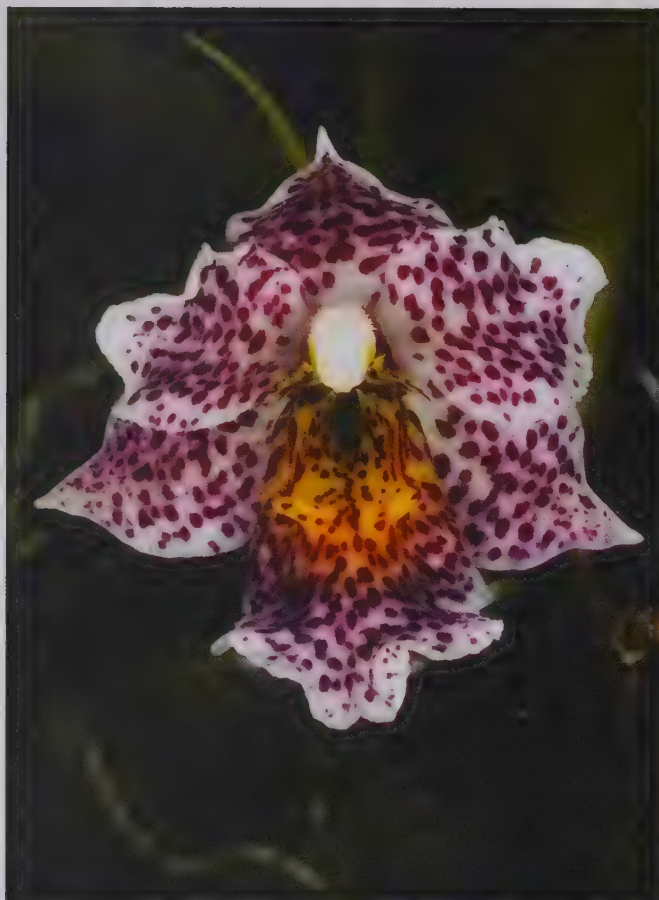


Figure 4.1484 (above left) *Trichocentrum pulchrum* white clone with heavy spotting (Grower: Brad Cotten).

Figure 4.1485 (above right) *Trichocentrum pulchrum* greenish-white clone with delicate spotting (Grower: Hanging Gardens).

Figure 4.1486 (below) *Trichocentrum pulchrum* photographed *in situ* near Guanare, Portuguesa state, Venezuela, at approximately 1200 m elevation (Photo: Greg Allikas).

TRICHOCENTRUM

Trichocentrum pumilum (Lindl.) M.W.Chase & N.H.Williams

Publication: *Lindleyana* 16: 138 (2001)

Etymology: From the Latin *pumilio* (very small, dwarf), referring to the small size of this species in relation to its closest relatives, those species once known by the name “mule ear *Oncidium*”.

Homotypic synonyms: *Lophiarella pumila* (Lindl.) Szlach., Mytnik & Romowicz, *Lophiaris pumila* (Lindl.) Braem, *Oncidium pumilum* Lindl.

Heterotypic synonyms: *Epidendrum ligulatum* Vell., nom. illeg., *Oncidium minutiflorum* Schltr., *Oncidium pumilum* var. *angustifolium* Cogn., *Oncidium pumilum* var. *laxum* Kraenzl., *Oncidium pumilum* var. *megalanthum* Schltr., *Oncidium pumilum* var. *robustum* Cogn.

Morphology: Plant 4–12 cm tall, clustered, occasionally branched. *Pseudobulb* extremely reduced, 0.3–0.5 cm tall by 0.4–0.6 cm wide, ovoid, somewhat compressed laterally. *Leaf* 5–12 cm long by 1.6–3.5 cm wide, sessile, conduplicate at base, oblong to ovate, apex acute to obtuse, lamina arcuate to flat, erect, rigid, finely spotted with purple and often suffused with pinkish-brown to reddish-purple. *Inflorescence* a densely congested, short-branched panicle, 8–15 cm long, erect to sub-erect, lateral from recently matured pseudobulb. *Flower* 0.5–0.7 cm in diameter, many in number, simultaneous, widely spreading, lip callus consisting of several raised, digit-like projections, column wings hook-like.

Range, elevation and habitat: *Trichocentrum pumilum* occurs in Brazil (states of Pará, Bahia, Mato Grosso, Goiás, Distrito Federal, Minas Gerais, Espírito Santo, São Paulo, Rio de Janeiro, Paraná, Santa Catarina and Rio Grande do Sul), Argentina (provinces of Chaco, Corrientes, Formosa and Misiones), Paraguay (provinces of Caaguazú, Caazapá, Central, Concepción, Cordillera, Guairá, Itapúa, Misiones, Ñeembucú and Paraguairí) and Uruguay (department of Trienta Y Tres). A widespread and common species, it grows as an epiphyte at elevations of 200–950 m. In Brazil it inhabits the coastal mountains, where it grows in brush along creeks and washes, often in relatively bright situations. In the interior, *T. pumilum* occurs in swampy and marshy areas of subtropical montane rainforest. It can also be seen growing in deep shade on mossy trunks. This species flowers in spring and summer in nature.

Culture recommendations: See general notes for the genus. *Temperature* warm to intermediate. *Light* medium shade.

Comments: Long known as *Oncidium pumilum*, *Trichocentrum pumilum* was also known briefly as *Lophiaris pumila* before being transferred, along with the other “mule ears”, to its current genus. This undeniably cute little species can bear a multitude of small, yellow flowers on a short-branched spike, putting on a lovely show for a few weeks. It is not commonly seen



Figure 4.1487 (above) The densely flowered inflorescence of *Trichocentrum pumilum* (Grower: Orchid Species Plus).



Figure 4.1488 (above) *Trichocentrum pumilum* growing in the coastal mountains of Brazil (Photo: Leonardo Desordi Lobo).

TRICHOCENTRUM

in collections, but is relatively available if sought. Flowering generally occurs in early spring to mid-summer in cultivation. There are two closely related species that are similar to and often confused with *T. pumilum*. *Trichocentrum morenoi* (Dodson & Luer) M.W.Chase & N.H. Williams has pale flowers with squarish lobes to the lip and squarish column wings. *Oncidium schwambachiae* V. P. Castro & Toscano, which has not been formally transferred to *Trichocentrum*, has whitish flowers with faint reddish striping and a broad, golden yellow convex callus on the lip. Plants of the latter two species are very similar to those of *T. pumilum* and it would be difficult to distinguish between these three taxa when out of bloom.

Figure 4.1489 (right) *Trichocentrum pumilum* bears multitudes of cute flowers on a short-branched spike (Grower: Judy Carney).

Figure 4.1490 (below) *Trichocentrum pumilum* growing as a trunk epiphyte in bright hill forest (Photo: Rafael Bortoloti).

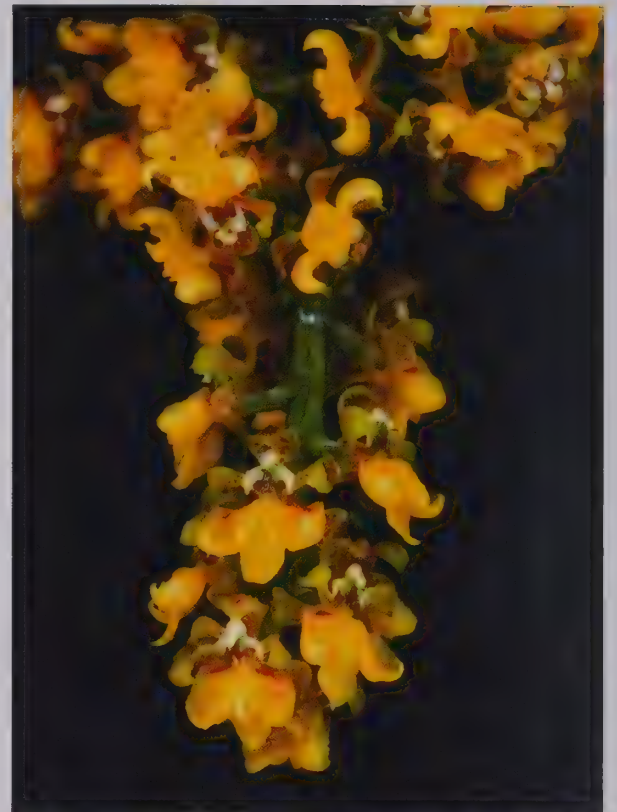




Figure 4.1491 (above) *Trichocentrum pumilum* flowers in detail (Grower: Orchid Species Plus).

Figure 4.1492 (below) *Oncidium schwambachii* is a related taxon bearing whitish flowers with a yellow lip callus (Grower: Cindy Hill).

Figure 4.1493 (above) The related *Trichocentrum morenoi* has pale flowers with squarish lobes (Grower: Kay Rinaman).

Figure 4.1494 (below) *Oncidium schwambachii* flowers seen in detail (Grower: Lilian Severin).

TRICHOCENTRUM

Trichocentrum tigrinum Linden & Rchb.f.

Publication: *Gard. Chron.* 1869: 892 (1869)

Etymology: From the Latin *tigrinus* (tiger striped), referring to the pattern on the petals and sepals.

Heterotypic synonym: *Trichocentrum tigrinum* var. *splendens* L.Linden & Rodigas.

Morphology: Plant to 12 cm tall, erect to sub-erect, clumping, occasionally branching. *Pseudobulb* tiny, nearly obsolete, concealed by bracts. *Leaf* to 12 cm long by 4 cm wide, oblong-elliptic, apex obtuse to acute, lamina erect to spreading, thickly leathery, fleshy, rigid, usually attractively spotted with red, often suffused with reddish ventrally. *Inflorescence* a raceme, to 15 cm in length, inflorescence elongating between flowers, spreading to pendent, borne laterally from base of recently matured growth. *Flower* to 8 cm tall, 1–2 (rarely more) in number, usually successive, widely spreading, lip proportionately large, fragrant. Flowers vary in background colour from yellowish-green to green, and spotting varies in size (nearly coalescing at times), number and in colour from reddish-purple to blackish. The colour and patterning on the lip varies in size and intensity.

Range, elevation and habitat: *Trichocentrum tigrinum* grows in Ecuador (provinces of El Oro, Guayas, Loja and Manabí) and Peru (department of Piura), where it is found as a common epiphyte in tropical dry forest and sub-arid, seasonal forest, often in exposed, sunny conditions at elevations from 200–2800 m, although it is more frequently found at lower elevations.

Culture recommendations: See general notes for the genus. *Temperature* warm to cool, but the species generally comes from lower elevations, so warm to intermediate is best. *Light* light shade. *Humidity* average to high. It is best to use little or no moss around the roots of this species.

Comments: The authors feel that *Trichocentrum tigrinum* epitomises the best of miniature orchids. It has proportionately large to huge, fragrant flowers that are extremely attractive. Stunning by any standard, the blooms have a wonderful combination of greenish petals and sepals overlaid with dark spotting, and a predominantly white lip marked basally with reddish-purple spots on either side of a complex yellow callus. Attractive in its own right, the rugged plant has thickened, leathery, succulent leaves that turn reddish or purplish in bright light. In addition, this popular species is common in cultivation and readily available. It may bloom at any time of year in cultivation.



Figure 4.1495 (above) The exceptional *Trichocentrum tigrinum* has large and beautiful flowers (Grower: Judy Carney).



Figure 4.1496 (above) A *Trichocentrum tigrinum* clone with greenish, spotted segments (Grower: Howard Gunn).

Trichoceros Kunth

Publication: Kunth, C.S., 1816, *Nov. Gen. Sp.* 1: 337

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Telipogoninae)

Type species: *Trichoceros antennifer* (Humb. & Bonpl.) Kunth, 1816, *Nov. Gen. Sp.* 1: 338.

Etymology: From the Greek *trichos* (hair) and *keras* (horn), in reference to the hairy processes on either side of the column of the type species.

Profile: A genus of approximately 10 epiphytic, terrestrial or lithophytic species from montane areas of Venezuela, Colombia, Ecuador, Peru and Bolivia. They grow in cloud forest at 1800–3200 metres, generally in the lower branches of bushes and small trees, in mossy ground and on grass hummocks.

General morphology: *Plant* sympodial, individual growths to 4 cm tall by 9 cm wide, repent, rhizome ascending, enclosed in papery bracts, branching, mat-forming, rooting prolifically at base of pseudobulbs, roots proportionately thick, long, often aerial. *Pseudobulb* to 2.5 cm tall by 1.3 cm wide to nearly obsolete, ovoid, globose or ellipsoid, subtended by up to 4 progressively larger, leafy bracts, leaf apical, unifoliate, small to sometimes obsolete. *Leaf* to 4.5 cm long by 2 cm wide, similar, larger, leafy bracts to 6 cm long by 2.3 cm wide, conduplicate for length, narrowly to broadly oblong, apex acute, sometimes apiculate, lamina erect, usually arcuate, thickly leathery, fleshy, minutely rugose, succulent, ventrally punctate, suffused with reddish or purple. *Inflorescence* a congested raceme, long pedunculate, erect, slender, axillary. *Flower* small, successive, sepals and petals free, widely spreading, subsimilar, lip three-lobed, insect-like, sessile, usually covered with trichomes, column short, covered with trichomes, pollinia 4, stipe elongate, spatulate, viscidium minute.

General culture notes: *Substrate* mount on good-sized pieces of cork oak, rough wood shingles, hard tree fern poles or tree fern plaques, using a little New Zealand *Sphagnum* moss around the roots. These species are generally unsuited to potted cultivation due to the highly repent and branching nature of the plants. Small pieces may be potted initially, but eventually plants will need to be grown on a mount. *Temperature* cool to cold. *Light* light to medium shade. *Watering* water frequently, allow to dry briefly between watering. No winter dormancy is required. *Humidity* high. *Air movement* brisk. *Propagation* easily by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce frequency during winter.

Comments: All *Trichoceros* species are vegetatively similar and cannot generally be distinguished from one another when out of bloom. Plant dimensions are commonly greater in cultivation. Some species may have longer rhizomes between pseudobulbs, but this can vary with growing conditions. Plants grown under higher light tend to have shorter, stouter internodes. Those taxa selected for inclusion were chosen for shorter rhizomes between growths, although all *Trichoceros* can be considered miniature. *Trichoceros* are closely related to *Telipogon*, but in contrast to that genus, they are relatively easy to cultivate if cool conditions are provided.

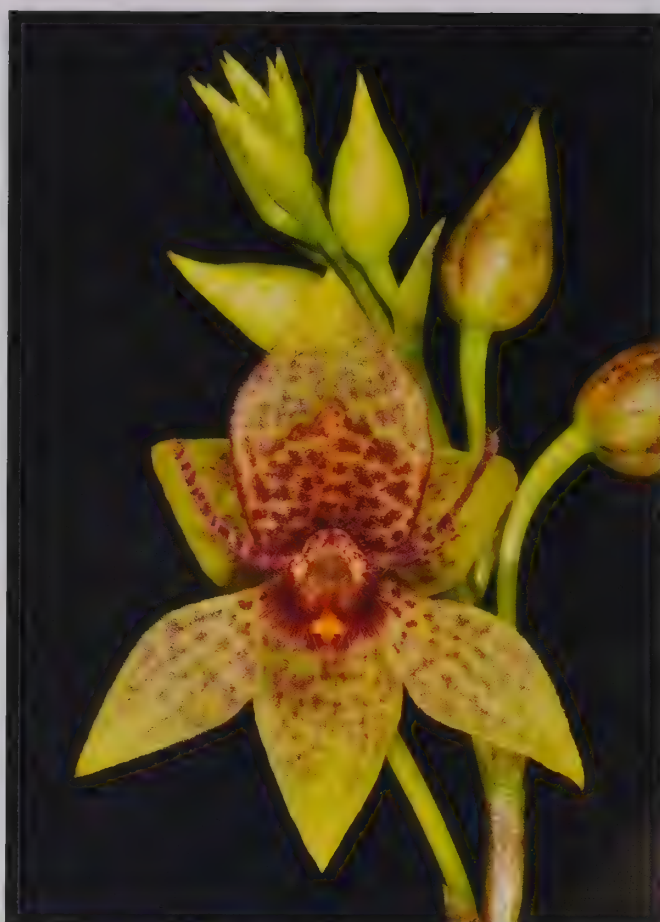


Figure 4.1497 (above) *Trichoceros antennifer* clone with brown flushed segments (Grower: Mary Gerritsen).

Figure 4.1498 (below) *Trichoceros* sp. with reddish flush and striping (Grower: Ron Parsons).

Figure 4.1499 (above) *Trichoceros antennifer* clone with green segments spotted red and brown (Grower: Ron Parsons).

Figure 4.1500 (below) *Trichoceros* sp. with brown blotching (Grower: Judy Carney).

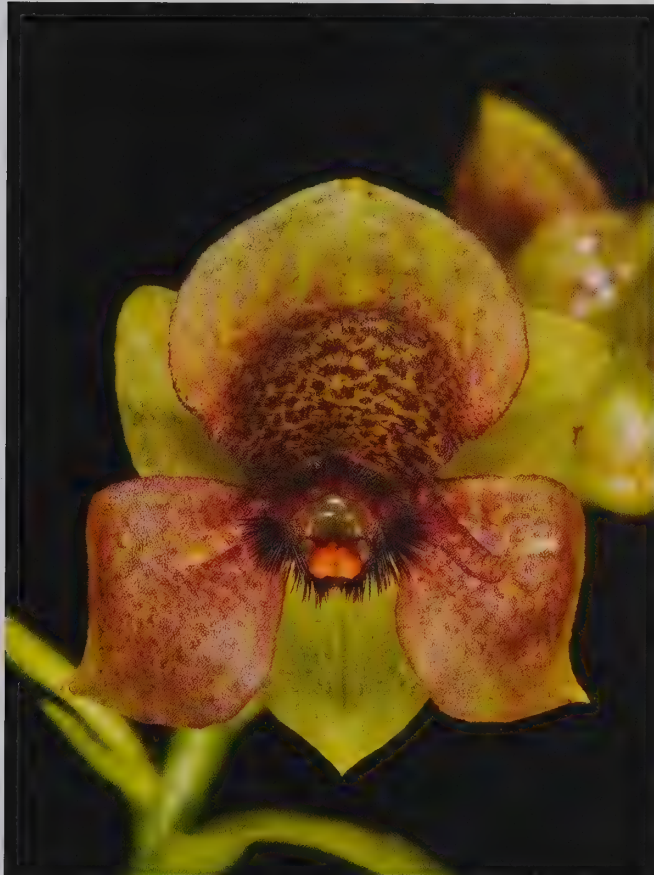


Figure 4.1501 (above) *Trichoceros* sp. flushed intensely red towards the centre (Grower: John Leathers).

Figure 4.1502 (below) *Trichoceros* sp. with a brown stippled lip and pale red flush (Grower: John Leathers).

Figure 4.1503 (above) *Trichoceros* sp. red centre with more pronounced venation (Grower: Ron Parsons).

Figure 4.1504 (below) *Trichoceros* sp. with distinctly speckled and striped zones (Grower: John Leathers).

TRICHOCEROS

Trichoceros onaensis Christenson

Publication: *Icon. Orchid. Peruv.*: t. 789 (2001)

Etymology: The species name refers to the type locality, Oña, a town in the province of Azuay, Ecuador.

Morphology: *Plant* individual growth to 4 cm tall by 9 cm wide. *Pseudobulb* to 2.4 cm tall by 1.3 cm wide. *Leaf* to 2 cm long by 1.3 cm wide, leafy bracts to 6 cm long by 2.1 cm wide. *Inflorescence* to 45 cm in length. *Flowers* to 3 cm in diameter, several in number, 1–2 open simultaneously, non-resupinate, lip with raised callus, darker-spotted, contiguous with rounded, flattened side-lobes that partially surround and depending on posture, may be equal with or slightly surpass column, apex and interior of wings fine-bristly, column bristly. Flowers are yellowish, and variably veined and spotted with reddish.

Range, elevation and habitat: *Trichoceros onaensis* was first discovered near Oña, a town in the province of Azuay, Ecuador, at an elevation of about 2850 m. It was found growing terrestrially along a road cut, but may also grow lithophytically. It grows among non-native agave in full sun or shade, at elevations between 2400–2850 m. Conservation status unknown.

Culture recommendations: See general notes for the genus.

Comments: *Trichoceros onaensis* has one of the largest flowers in the genus. The length of rhizome between the pseudobulbs is notably shorter than most *Trichoceros*. This is a highly rewarding species, with very interesting, intricate, somewhat flattened flowers. As with all of the species in this genus, it is easy to cultivate, blooms reliably, has long-lasting, successively flowering inflorescences, and branches freely to become a specimen. In addition, the plants are simple to propagate. Unfortunately most of the species of *Trichoceros* are in taxonomic turmoil and hard to identify with certainty; regardless they are a highly collectible group. *Trichoceros onaensis* is one of the few that is relatively easy to identify; it can bloom in most seasons in cultivation, although there is a definite break during the winter months.

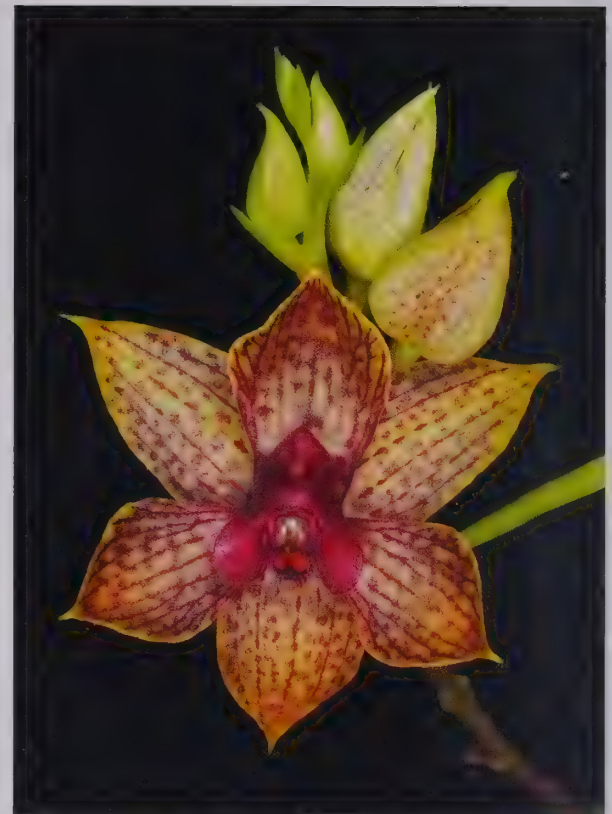


Figure 4.1505 (above) *Trichoceros onaensis* is large flowered and truly beautiful (Grower: Marni Turkel).



Figure 4.1506 (above) A *Trichoceros onaensis* clone with more pale coloured segments (Grower: Steve Beckendorf).

TRICHOCEROS

Trichoceros roseus Christenson

Publication: *Icon. Orchid. Peruv.*: t. 789 (2001)

Etymology: From the Latin *roseus* (pink) referring to the colour of the flowers.

Morphology: *Plant* individual growths to 3 tall by 7 cm wide. *Pseudobulb* to 1.2 cm tall by 1 cm wide, globose to subglobose. *Leaf* to 3 cm long by 1.1 cm wide, leafy bracts to 4.3 cm long by 1.7 cm wide. *Inflorescence* to 10 cm, occasionally longer. *Flower* to 2.4 cm in diameter, lateral lobes erect, sepals and petals abruptly acuminate, labellum lateral lobes and callus rose pink. Flowers vary in background colour, from yellowish to pinkish, in the boldness of the striping, and in the extent and density of spotting.

Range, elevation and habitat: *Trichoceros roseus* grows in Ecuador. It occurs in the province of Azuay at an elevation of 2550 m. No information on habitat could be found. Conservation status unknown.

Culture recommendations: See general notes for the genus.

Comments: Without doubt one of the cutest species in the genus, *Trichoceros roseus* generally has full, rounded flowers with a rose pink callus and lateral lobes of the lip, the latter feature being unique in the genus. Many *Trichoceros* can form untidy, tangled mats in collections due to the distance between growths and their long inflorescences, but *T. roseus* is much more manageable, with rhizomes of 5 cm long or less between pseudobulbs, and shorter spikes of up to 15 cm in length. *Trichoceros roseus* is also one of the few species in the genus that can be grown potted, at least for a while. This species generally flowers from the summer months to late autumn in cultivation.



Figure 4.1507 (above) The cute, rounded flower of *Trichoceros roseus* is very pretty (Grower: Cindy Hill).



Figure 4.1508 (above) *Trichoceros roseus* has a rose pink callus and lateral lobes (Grower: Mary Gerritsen).

Figure 4.1509 (overleaf) A fine form of *Trichoceros roseus* with widely spaced spots and fine striping (Grower: Napa Valley Orchids).



TRICHOCEROS

Trichoceros tupaipi Rchb.f.

Publication: *Linnaea* 41: 33 (1876)

Etymology: Unknown, but possibly derived from a local native name.

Morphology: *Plant* individual growths to 3 cm tall by 7.5 cm wide. *Pseudobulb* to 1 cm tall by 1.3 cm wide, ovoid to globose. *Leaf* to 3 cm long by 1.3 cm wide, leafy bracts to 5 cm long by 1.5 cm wide. *Inflorescence* to 10 cm in length, occasionally longer. *Flower* to 2 cm in diameter, to 3 in number, occasionally more, successive, 1–2 open simultaneously.

Range, elevation and habitat: *Trichoceros tupaipi* grows as an epiphyte or lithophyte in Peru (departments of Piura and Cajamarca) at elevations of 2600–3500 m. It grows in the high, cold sierra on open, rocky and brush covered slopes in exposed, sunny situations.

Culture recommendations: See general notes for the genus.

Comments: This uncommon species is similar to *Trichoceros roseus*, a species with which it is often confused. The late Eric Christenson, a taxonomist who studied the Peruvian Orchidaceae intensively, reasoned that *T. tupaipi* was not a valid species (E. Christenson, pers. comms., 2010). Unfortunately, Christenson neither elaborated nor published his findings prior to his untimely demise in 2011. *Trichoceros tupaipi* typifies the confusion that reigns in this genus, and so the flower of this taxon is illustrated with some trepidation.



Figure 4.1510 (above) *Trichoceros tupaipi* is an infrequently seen taxon that lies close to *T. roseus*, but its validity as a species is uncertain (Grower: Ron Parsons).

Trichoglottis Blume

Publication: Blume, K. L. von, 1825, *Bijdr.*: 359

Subfamily: Epidendroideae

Tribe: Vandeae

Subtribe: Aeridinae

Heterotypic synonyms: *Stauroopsis* Rchb.f., *Synptera* Llanos.

Type species: *Trichoglottis retusa* Blume, 1825, *Bijdr.*: 360.

Etymology: From the Greek *tricho* (hair) and *glottis* (tongue), in reference to the hairy lip.

Profile: A genus of about 65 epiphytic species found in India, Sri Lanka, south central China, Taiwan, across Southeast Asia, including Peninsular Malaysia, Sulawesi, Java, Borneo and the Philippines, and east to New Guinea, the Solomon Islands and Australia (Queensland).

General morphology: *Plant* monopodial, large to small, climbing or pendent, leaves numerous, distichous, bases imbricating. *Inflorescence* lateral, axillary. *Flower* 1 to several, resupinate, sepals and petals subsimilar, spreading, lateral sepals joined to the column foot, lip fleshy, saccate or spurred at base, often pubescent, trilobed, pollinia 4.



Figure 4.1511 (above) A small growing species, *Trichoglottis pusilla* is rightfully popular given its exquisite flowers with their intense and spicy fragrance (Grower: Brad Cotten).

TRICHOGLOTTIS

Trichoglottis triflora (Guillaumin) Garay & Seidenf.

Publication: *Bot. Mus. Leaf.* 23: 209 (1972)

Etymology: From the Greek *treis* (three) and Latin *florem* (flower), possibly referring to the number of flowers on the type specimen.

Homotypic synonym: *Saccolabium triflorum* Guillaumin.

Morphology: *Plant* to 12 cm wide, stem to 8 cm long, erect, leaves many, roots proportionately large, slightly flattened. *Leaf* to 6 cm long by 0.5 cm wide, linear to narrowly lanceolate, apex obtuse, unequally bilobed, lamina conduplicate, straight to curving upwards, leathery, rigid. *Inflorescence* a corymb, very short, to 2.5 cm long, one to several simultaneous inflorescences. *Flower* to 0.5 cm in diameter, 2–7 in number, simultaneous, spreading, nectary minute, thick. Flowers vary in proportion of brown overlay in petals and sepals, and in number and density of purple markings on lip.

Range, elevation and habitat: *Trichoglottis triflora* occurs in the southern portion of Yunnan province, China, as well as in Thailand and Vietnam. It grows as a locally common epiphyte on tree trunks in warm, humid, montane forest at elevations of 1100–1500 m. This species generally flowers during the winter and spring, but in Thailand it blooms in May and June, and in China, August.

Culture recommendations: *Substrate* mount on pieces of cork oak, rough barked hardwood, rough wood shingles or possibly on tree fern plaques, using New Zealand *Sphagnum* moss around the roots. The authors have not seen this species cultivated in pots, but it may be possible to grow these plants in this manner using an open mix. *Temperature* warm to intermediate. *Light* light shade. *Watering* water frequently, allowing plants to dry briefly between waterings. Reduce watering frequency during winter. *Humidity* high. *Air movement* good to brisk. *Propagation* occasionally by division. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: Possibly the smallest species in a genus of predominantly large plants, *Trichoglottis triflora* is a delightful selection for the grower of miniature orchids. It forms clumps with age, making for beautiful specimens, and each growth is capable of producing several simultaneous inflorescences, each bearing numerous blooms in turn. The markings on the flowers are surprisingly variable, in particular the purplish spots on the lip. Easy to grow, readily available and relatively common in collections, *T. triflora* generally blooms mid-autumn to mid-spring in cultivation.



Figure 4.1512 (above) *Trichoglottis triflora* produces numerous blooms. Flowers may vary significantly in colour between clones (Grower: Howard Gunn).

Figure 4.1513 (overleaf) A *Trichoglottis triflora* plant in bloom (Grower: Andy's Orchids).



Trichosalpinx Luer

Publication: Luer, C. A., 1983, *Phytologia* 54: 393

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Specklinia ciliaris* Lindl., 1838, now *Trichosalpinx ciliaris* [Lindl.] Luer.

Etymology: From the Greek *trichos* (hair) and *salpinx* (trumpet), referring to the pubescent, lepanthiform (funnel-shaped, open ended at the apex) sheaths covering the ramicaul.

Profile: A large genus of over 100 epiphytic, lithophytic or terrestrial species, ranging from southern Mexico through Central America and south to Bolivia and southern Brazil, as well as the West Indies and Trinidad and Tobago. *Trichosalpinx* grow from low elevation tropical wet forest to higher elevation cloud forest, elfin forest and subpáramo, at elevations from near sea level to 4000 m.

General morphology: *Plant* sympodial, clumping, trailing or repent, branching. *Ramicaul* erect to pendent, slender, enclosed in lepanthiform sheaths. *Leaf* tiny to medium-sized, leathery. *Inflorescence* a raceme, progressively elongating, usually shorter than leaf, one to several simultaneous inflorescences, emerging laterally at or near apex of ramicaul, or at the abscission layer, often appressed to ventral surface of leaf. *Flower* tiny to small, one to many in number, highly variable, successive, sepals free or connate, translucent, petals free, spreading, sepals and petals usually dissimilar, lip unlobed or trilobed, articulate to column foot, often mobile, column arching or straight, occasionally with wings, pollinia 2.

General culture notes: *Substrate* dependent upon species. *Temperature* dependent upon species. *Light* generally medium shade. *Watering* keep moist and well-drained. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 strength weekly. Pleurothallids, including *Trichosalpinx*, are prone to bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests. *Fertilise* at 1/4 strength weekly.

Comments: *Trichosalpinx* is a large genus of taxa with disparate morphologies. It is quite possible that the genus will be divided into two or more genera in the future.



Figure 4.1514 (above) An unidentified species of *Trichosalpinx* from Guatemala (Grower: John Leathers).

TRICHOSALPINX

Trichosalpinx caudata Luer & R. Escobar

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 64: 20 (1997)

Etymology: From the Latin *cauda* (tail), referring to the lateral sepaline tails.

Morphology: *Plant* to 12.5 cm tall, clumping, erect. *Ramicaul* 2–8 cm tall, relatively stout, erect. *Leaf* 1.5–4.5 cm long by 1–2.5 cm wide, contracting abruptly to minute petiole, broadly elliptical-ovate, apex sub-acute to obtuse, lamina erect, usually suffused with purple ventrally. *Inflorescence* a congested raceme, 0.4–0.7 cm in length including filiform peduncle, flowers secund, borne from near apex of ramicaul on ventral side of leaf. *Flower* 1.2–1.5 cm tall, few to several in number, simultaneous, resupinate, widely spreading.

Range, elevation and habitat: *Trichosalpinx caudata* occurs in Panama (province of Chiriquí) and Colombia (departments of Antioquia and Chocó). It is a scarce species in Chocó. This taxon is found at relatively low elevations, growing as an epiphyte on thick branches in the canopy of montane wet forest. Only one elevation record of 500 m is known. Flowering can occur at any time of year.

Culture recommendations: *Substrate* mount on pieces of cork oak, rough wood shingles, rough barked hardwood or on tree fern plaques, using New Zealand *Sphagnum* moss around the roots. This species may also be grown potted using moss or a fine bark mix. *Temperature* warm-intermediate to intermediate. Conservation status unknown.

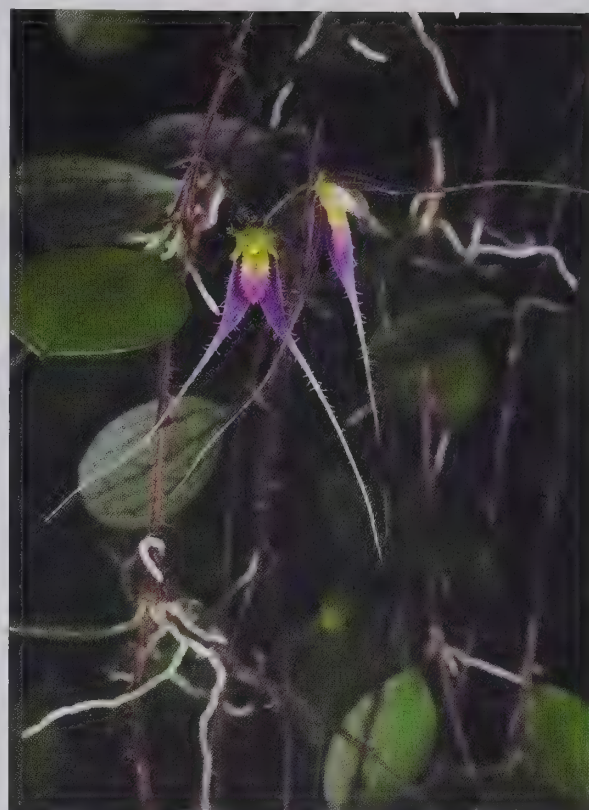
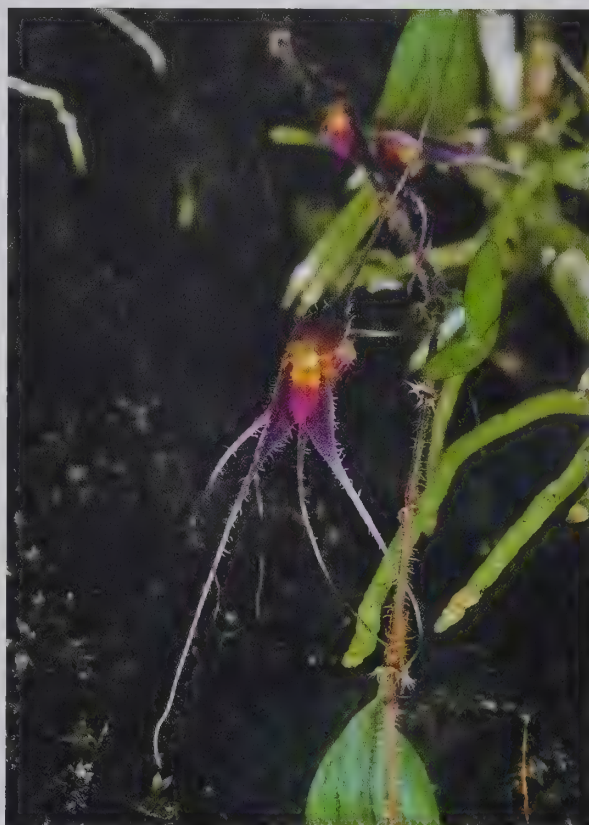
Comments: *Trichosalpinx caudata* is one of several species in the genus with flowers that are not immediately obvious. The elongate blooms grow in tight clusters at the apex of the ramicaul, hidden under the attractive leaves. Vegetatively it is identical to *T. orbicularis*, another common and collectible plant. Both species are capable of flowering at any time, and mature plants nearly always have some flowers. *Trichosalpinx caudata* is not a cool growing pleurothallid, requiring warm to intermediate conditions. It is considered easy to cultivate.



Figure 4.1515 (above) *Trichosalpinx caudata* produces clusters of blooms beneath the leaves (Grower: J & L Orchids).



Figure 4.1516 (above) *Trichosalpinx caudata* clone with paler colouration (Grower: J & L Orchids).

TRICHOSALPINX***Trichosalpinx chamaelepanthes* (Rchb.f.) Luer****Publication:** *Phytologia* 54: 395 (1983)**Etymology:** From the Greek *chamae* (creeping, on the ground) and the genus *Lepanthes*, referring to the habit of this *Lepanthes*-like species.**Homotypic synonyms:** *Humboltia chamaelepanthes* (Rchb.f.) Kuntze, *Pleurothallis chamaelepanthes* Rchb.f., *Tubella chamaelepanthes* (Rchb.f.) Archila.**Heterotypic synonyms:** *Lepanthes corazonis* Schltr., *Pleurothallis microcharis* Schltr., *Pleurothallis microcharis* var. *minor* Schltr., *Trichosalpinx microcharis* (Schltr.) Luer.**Morphology:** *Plant* individual growths 1.3–9.2 cm tall, creeping to pendent, branching freely, forming thick mats. *Ramicaul* 1–8 cm long, usually pendent, producing next ramicaul from apex. *Leaf* 0.3–1.2 cm long by 0.4–1 cm wide, sessile to minutely petiolate, broadly elliptical to orbicular, apex obtuse, lamina erect in relation to ramicaul, often with purple venation dorsally and ventrally. *Inflorescence* a solitary or loose raceme, to 4 cm in length, filiform, borne from near apex of ramicaul. *Flower* 1–3 cm tall, 1–3 in number, successive, resupinate, thin textured, ovary papillose. Flowers vary from purplish to whitish in colour.**Range, elevation and habitat:** The most common of the *Trichosalpinx* species in the Andes Mountains, *T. chamaelepanthes* has a wide geographical distribution ranging from Colombia (departments of Antioquia, Caldas, Cauca, Chocó, Cundinamarca, Huila, Santander and Valle del Cauca), Ecuador (provinces of Azuay, Bolivar, Carchi, Chimborazo, Cotopaxi, El Oro, Imbabura, Loja, Morona-Santiago, Napo, Pastaza, Pichincha and Zamora-Chinchipe) and Peru (departments of Cuzco and Pasco). *Trichosalpinx chamaelepanthes* is found over an extremely wide elevation range, from 750 to 3800 m, and grows as an epiphyte in scrub forest, sub-Andean forest, cloud forest and páramo.**Culture recommendations:** *Substrate* mount on flat pieces of cork oak, rough wood shingles or tree fern plaques, using New Zealand *Sphagnum* moss around the roots. The authors have not seen this species cultivated in pots, but divisions may be started in this manner. However, their pendent habit means that they eventually will need to be grown on a mount. *Temperature* intermediate to cold, depending on the provenance of the plant. If unknown, grow cool.**Comments:** Questionably a miniature species, *Trichosalpinx chamaelepanthes* can form huge, handsome mats of long, trailing rhizomes, but each ramicaul and leaf easily fits within our limitations. Individually, the darker veined leaves are beautiful, and this species could be grown for its foliage alone. The ethereal, spidery flowers can be purplish, pink or cream, and**Figure 4.1517 (above)** *Trichosalpinx chamaelepanthes* has startlingly coloured flowers (Grower: Brad Cotten).**Figure 4.1518 (above)** A *Trichosalpinx chamaelepanthes* bloom in detail (Grower: John Leathers).

TRICHOSALPINX

may appear at any time. That said, the plants are somewhat shy to bloom. Although it is unlikely that *T. chamaelepanthes* could be confused with any other species, it is the only taxon in the genus with papillose ovaries.



Figure 4.1519 (above) An unidentified species related to *Trichosalpinx chamaelepanthes* (Grower: Judy Carney).

TRICHOSALPINX

Trichosalpinx manningii Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 88: 113 (2002)

Etymology: Named for Steve Manning, an English grower of orchids with a penchant for pleurothallids. He authored *Discovering NewWorld Orchids* (2011).

Morphology: *Plant* 3.5–6 cm tall, scandent, may become pendent. *Ramicaul* 2–4.5 cm long, erect, producing another ramicaul at apex. *Leaf* 1.5–2.2 cm long by 1–1.6 cm wide, petiole minute, twisted, apex obtuse to rounded, lamina obovate, erect. *Inflorescence* a loose raceme, 5–6 cm long including peduncle, flexuous, borne from near apex of ramicaul. *Flower* 2–2.5 cm tall, 5–7 in number, simultaneous, resupinate, widely spreading, somewhat nodding, petals similar to sepals, pedicels 0.3–0.5 cm long.

Range, elevation and habitat: *Trichosalpinx manningii* is named for the grower, who purchased the plant without collection data. As far as is known, it came from Peru, but there are no other collection data. Flowering times are unknown, but it is likely to bloom at any time of year. It is listed as “data deficient” in *El Libro Rojo de las Plantas Endémicas del Perú* (2007).

Culture recommendations: *Substrate* mount on flat pieces of cork oak, rough wood shingles, rough barked hardwood or tree fern plaques, using New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to the repent nature of the plants; although divisions may be started in pots, the plants will eventually will need to be mounted. *Temperature* cool.

Comments: A rare species in cultivation, *Trichosalpinx manningii* has whitish, lacy flowers with relatively large petals, similar in size and appearance to the sepals, a feature unique in the genus. The scrambling plants bear proportionately large, nodding flowers. Not easy to confine to a pot, *T. manningii* is best grown on a mount or raft to accommodate its spreading habit. Flowers have been seen in cultivation from mid-summer to early winter, but this species is likely to flower at any time of the year.



Figure 4.1520 (above) *Trichosalpinx manningii* inflorescences bearing the large, nodding flowers so characteristic of this species (Grower: Mary Gerritsen).

TRICHOSALPINX

Trichosalpinx orbicularis (Lindl.) Luer

Publication: *Phytologia* 54: 396 (1983)

Etymology: From the Latin *orbicularis* (circular in outline, orbicular), in reference to the round leaves.

Homotypic synonyms: *Humboltia orbicularis* (Lindl.) Kuntze, *Pleurothallis orbicularis* (Lindl.) Lindl., *Specklinia orbicularis* Lindl.

Heterotypic synonyms: *Humboltia biflora* (H.Focke) Kuntze, *Lepanthes orbiculata* Lindl. ex Rchb.f., *Pleurothallis biflora* H.Focke, *Pleurothallis lancifera* Schltr., *Pleurothallis trachytheca* F.Lehm. & Kraenzl., *Trichosalpinx oxychilos* Carnevali & G.A.Romero, *Trichosalpinx lancifera* (Schltr.) Luer.

Morphology: *Plant* 3.5–11.5 cm tall, clumping, erect. *Ramicaul* 2–8 cm tall, erect, somewhat stout. *Leaf* 1.5–3.5 cm long by 1–2 cm wide, ovate to broadly elliptical-ovate, apex sub-acute to obtuse, lamina erect, ventrally purple, sometimes minutely punctate, marginate. *Inflorescence* a congested raceme, 1 cm long including peduncle, flowers basically secund, borne near apex of ramicaul on ventral side of leaf. *Flower* 0.3–0.7 cm tall, 2–6 in number, simultaneous, resupinate, spreading.

Range, elevation and habitat: A frequent and extremely widely distributed species, *Trichosalpinx orbicularis* has been found in Nicaragua (department of Atlántico Sur), Costa Rica (provinces of Heredia, Limon, Puntarenas and San José), Panama (provinces of Chiriquí, Coclé, Herrera, Loreto and Panamá), Colombia (departments of Antioquia, Chocó, Putumayo, Risaralda, Valle del Cauca and Vaupes), Ecuador (provinces of Cotopaxi, Esmeraldas, Imbabura, Morona-Santiago, Napo, Pichincha and Sucumbíos), Peru, Venezuela (states of Amazonas, Bolívar, Miranda and Sucre), French Guiana, Guyana, Suriname and Brazil (states of Amazonas, Amapá and São Paulo). It occurs at elevations ranging from near sea level to 1800 m, from wet lowland forest to moist, montane cloud forest.

Culture recommendations: *Substrate* mount on pieces of cork oak, rough wood shingles, rough barked hardwood or tree fern plaques, using New Zealand *Sphagnum* moss around the roots. This species may be grown in pots using moss or a fine bark mix. *Temperature* warm to intermediate.

Comments: As mentioned under *Trichosalpinx caudata*, these two species are vegetatively indistinguishable. As per the former species, the cryptic flowers of *T. orbicularis* are hidden under the leaves and may appear at any time, even small specimens often bearing at least a few blooms. *Trichosalpinx orbicularis* is extremely widespread, and thus quite variable, but this species lacks the sepaline tails of the more range-restricted *T. caudata*. This species is generally available, and a desirable addition for growers with warm to intermediate conditions who wish to grow some pleurothallids.



Figure 4.1521 (above) The cryptic *Trichosalpinx orbicularis* flowers (Grower: Lilian Severin).

Trichotosia Blume

Publication: Blume, K. L. von, 1825, *Bijdr.*: 342

Subfamily: Epidendroideae

Tribe: Podochileae

Subtribe: Eriinae

Etymology: From the Greek *trichotos* (hairy), referring to the long-pubescent leaves, stems and flowers of many species in this genus.

Type species: Not designated. *Trichotosia ferox* and *Trichotosia pauciflora* were both described in the original genus description.

Profile: A genus of approximately 80 epiphytic, lithophytic or rarely terrestrial species, with a widespread distribution from northern India (Himalayas) and China to Southeast Asia, and east to the Solomon Islands and Vanuatu in the southwest Pacific. They are found in lowland forest, kerangas (heath forest), peat swamps and montane forest from near sea level to 2000 m.

General morphology: *Plant* sympodial, small to quite large, usually erect, pseudobulbs clustered to repent, branching. *Pseudobulbs* small to quite large, cylindrical, occasionally dilated in dwarf species, erect to pendent, often covered by leaf sheaths with reddish brown or white hispid hairs, leaves distichous to rarely spirally arranged in dwarf species, from a cylindrical, hairy leaf sheath. *Leaf* conduplicate, fleshy, glabrous or covered in red-brown hairs. *Inflorescence* a raceme, usually covered in red-brown hairs, short and single-flowered to long and many flowered, erect to pendent, axillary, rarely terminal, floral bracts hairy, at right angles to rachis. *Flower* small to medium sized, resupinate, often not spreading widely, dorsal sepal free, lateral sepals free, forming a conical or spur-like mentum with column foot, sepals red hairy abaxially, petals glabrous, free, smaller than sepals, lip entire to obscurely three-lobed, column with a foot, anther terminal, ovary covered in red brown hairs, pollinia 8.



Figure 4.1522 (above) The fuzzy flower and leaves of *Trichotosia dasyphylla* in detail (Grower: Russ Varnado).

TRICHOTOSIA

Trichotosia dasyphylla (E.C.Parish & Rchb.f.) Kraenzl.

Publication: *Pflanzenr.*, IV, 50(50): 138 (1911)

Etymology: From the Greek *dasy* (woolly) and *phylla* (leaf), referring to the hairy leaves.

Homotypic synonyms: *Eria dasyphylla* E.C.Parish & Rchb.f., *Pinalia dasyphylla* (E.C.Parish & Rchb.f.) Kuntze.

Heterotypic synonym: *Eria evrardii* Gagnep.

Morphology: *Plant* 2–3 cm tall, repent, mat-forming, rhizome hispid. *Pseudobulb* abbreviated, leaves 2–5 in number, apical. *Leaf* to 2 cm long by 0.8 cm wide, shortly petiolate, elliptic to oblong to obovate-cuneate, apex obtuse to rounded, lamina fleshy, leathery, with greyish-white hairs mixed with hispid hairs, pale green ventrally. *Inflorescence* a raceme, 1–2.5 cm long including peduncle, pubescent, sheathed, terminal, arising from centre of new growth. *Flower* 0.5–0.7 cm in diameter, 1, rarely 2 in number, simultaneous, exterior of sepals and petals with dense, long white hairs. Flowers vary in colour from greenish to yellow.

Range, elevation and habitat: *Trichotosia dasyphylla* is a very widespread and locally common species that occurs in India (states of Arunachal Pradesh, Sikkim and West Bengal), Myanmar, Thailand, Laos, Nepal, Vietnam, southern China (southern Yunnan province) and Cambodia, at elevations of 500–2000 m. It grows as an epiphyte on moss covered trunks and branches, sometimes on *Schima wallichii* (Theaceae), and in the canopy of mixed broadleaf, evergreen, lowland or subtropical forests in humid, lightly shaded, hot to intermediate situations. *Trichotosia dasyphylla* flowers at different times in its various habitats and elevations, but generally between April and September. In Thailand, however, it blooms in January, and in Vietnam it can flower at any time of year, often with one or more flowers on a plant. (L. Averyanov, pers. comms., 2012). In Nepal, *T. dasyphylla* is a localised species that is considered threatened by deforestation and collection for ornamental use.

Culture recommendations: *Substrate* mount on flat pieces of cork oak, rough wood shingles or tree fern plaques, using a little New Zealand *Sphagnum* moss around the roots. This species is not suited to potted culture due to its repent, mat-forming habit. *Temperature* warm to intermediate. *Light* light to medium shade. *Watering* water frequently from spring through autumn, allowing to dry briefly between waterings. Reduce watering frequency during the winter, but always ensure that humidity is high. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly.

Comments: A great choice for collectors of miniature orchids, *Trichotosia dasyphylla* not only has very cute, fuzzy flowers, but a delightfully fuzzy

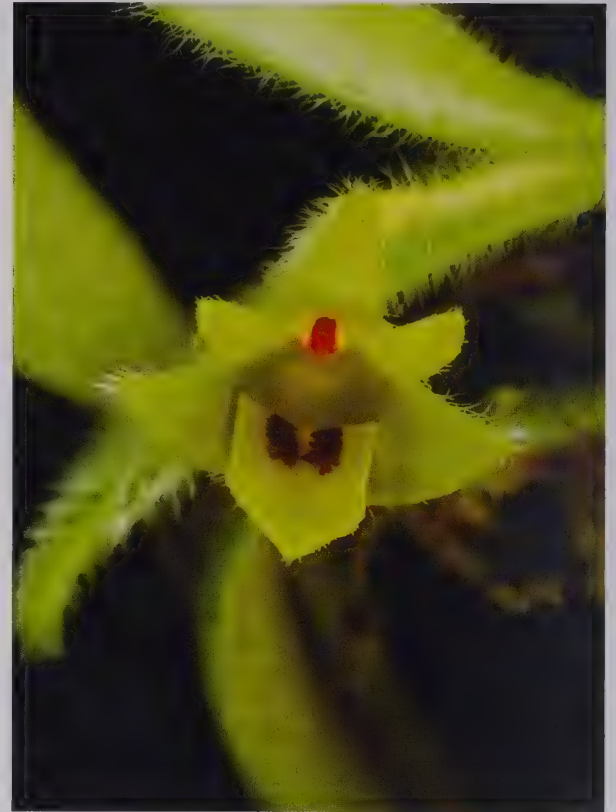


Figure 4.1523 (above) *Trichotosia dasyphylla* flowers are modest, but rather cute (Grower: Marni Turkel).

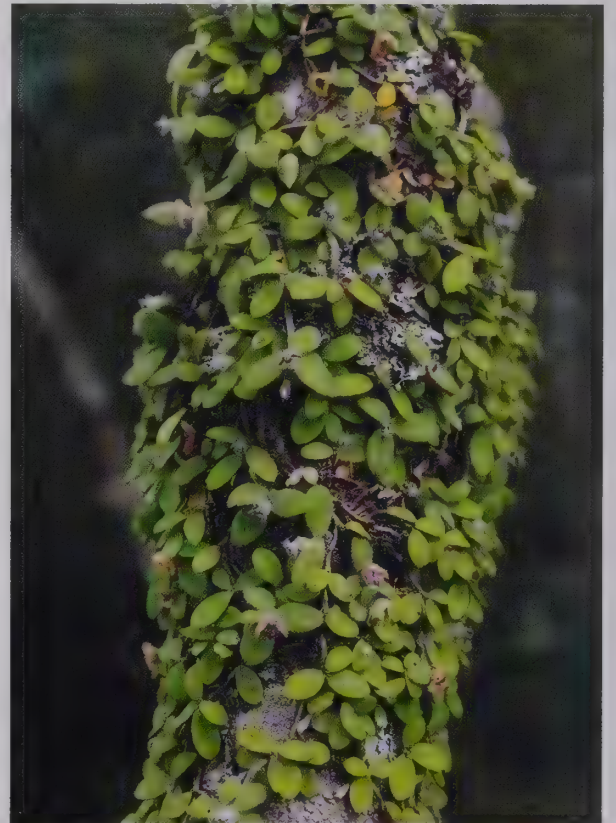


Figure 4.1524 (above) *Trichotosia dasyphylla* covers a trunk, province of Dien Bien, Vietnam (Photo: Leonid Averyanov).

TRICHOTOSIA

plant form too. The blooms are small, light to bright green, often with a couple of reddish blotches in the throat of the lip. Whitish hairs adorn the outside of the flowers and the pedicel. The paddle-like leaves that sit atop the much reduced pseudobulb, and all parts of the creeping plants, are covered with hairs even longer than those on the flowers. Flowering in cultivation tends to occur in mid-spring to early autumn, but with occasional blooms at other times.



Figure 4.1525 (above) *Trichotosia dasyphylla* growths adorn a tree in Thailand (Photo: Kobsukj Kaenratana).

Trisetella Luer

Publication: Luer, C. A., 1980, *Phytologia* 47: 57

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Trisetella triaristella* (Rchb.f.) Luer, 1980, *Phytologia* 47: 58.

Etymology: From the Greek *trias* (three), *seta* (bristle) and the diminutive *-ella*, in reference to the slender sepaline tails.

Heterotypic synonyms: *Triaristella* (Rchb.f.) Brieger ex Luer, nom. illeg., *Triaristellina* Rauschert, nom. illeg.

Profile: A genus of more than 20 epiphytic or lithophytic species ranging from Costa Rica south to Bolivia and northern Brazil. The plants are found in wet or cloud forest at elevations from 200–2600 m.

General morphology: *Plant* sympodial, small to very small, erect, clumping, tufted, branching. *Ramicaul* short, enclosed in overlapping tubular sheaths. *Leaf* shortly petiolate to sessile, linear oblanceolate, sometimes semi-terete, erect, *Inflorescence* an apically congested raceme, usually erect, slender, sometimes verrucose, borne from ramicaul. *Flower* proportionately large, few in number, singly successive, resupinate, sepals prominent, slender, sepaline tails often clavate, dorsal sepal often connate to some extent with fused lateral sepals, lateral sepals fused to form more or less concave synsepal, petals minute, membranous, free, lip minute, obscurely trilobed, hinged at base to column foot, column straight, without wings, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough wood shingles, rough-barked hardwood or tree fern plaques, using New Zealand *Sphagnum* moss around the roots. These plants may also be cultivated in small pots using moss or a fine bark mix. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, ensure excellent drainage. These species have no dormant period. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly. Pleurothallids, including *Trisetella*, are prone to infection with bean yellow mosaic virus, which is introduced by aphids. Ensure plants are kept free of these pests.

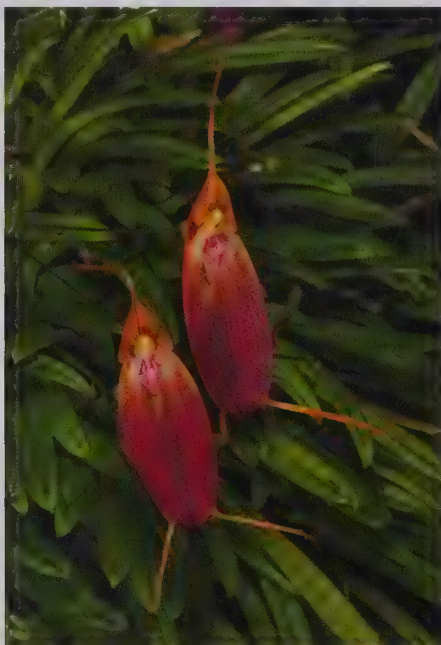


Figure 4.1526 (above) The relatively large flowers of the Colombian *Trisetella gemmata* are broadest in the middle. The plants are up to 5 cm tall (Grower: John Leathers).



Figure 4.1527 (above) *Trisetella escobarii*, another miniature Colombian species, the epithet honours the late Rodrigo Escobar of Medellín (Grower: Hanging Gardens).

TRISETELLA

Trisetella cordeliae Luer

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 31: 80 (1989)

Etymology: Named for Cordelia Head Webb, of J&L Orchids, Connecticut, who discovered this species in Peru.

Morphology: *Plant* 3–3.5 cm tall. *Ramicaul* to 0.5 cm tall. *Leaf* 2.5–3 cm long by 0.15 cm wide, sessile, linear, apex acute, lamina erect, thick, fleshy. *Inflorescence* a congested raceme, 5–5.5 cm peduncle, verrucose. *Flower* 2.2–2.5 cm tall, few in number, singly successive, widely spreading, synsepal broadly expanded, sepaline tails clavate, dorsal sepaline tail longer than laterals, pedicel to 0.6 cm long.

Range, elevation and habitat: *Trisetella cordeliae* was discovered growing epiphytically on a large felled tree in wet montane forest in the department of Huánuco, Peru, near Tingo Maria, at an elevation near 1800 m. It has apparently not been found again, and is listed as critically endangered on the IUCN red list. No bloom-time records could be found.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: *Trisetella cordeliae* has not been recorded in nature since it was first observed by Cordelia Head, one of the three owners of J & L Orchids. Fortunately, this species has since been propagated and widely dispersed. As a result, it is now found in pleurothallid collections around the world. Many species of *Trisetella* have reddish to maroon flowers, including *T. cordeliae*, but this taxon has a wide synsepal and an exquisite shape, giving it greater appeal than many other taxa in the genus. It tends to flower most frequently in the summer months, although blooms may appear at other times of year.

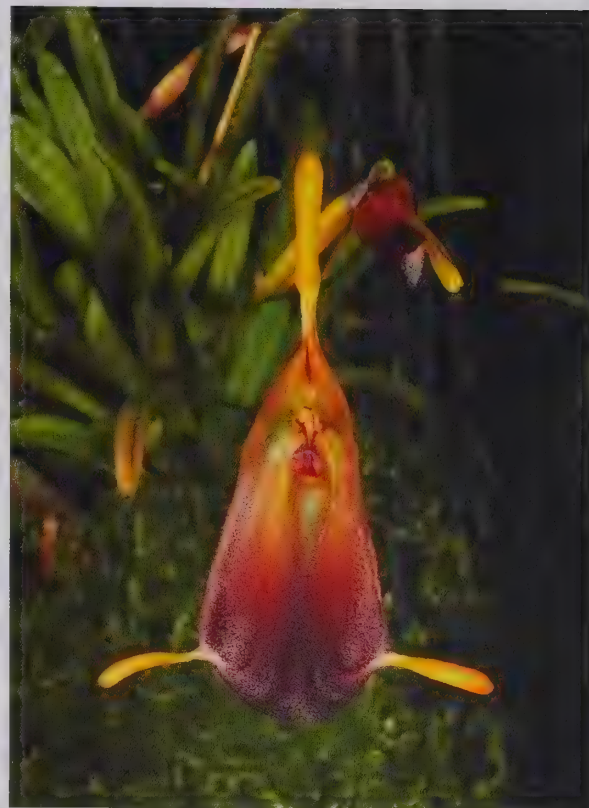


Figure 4.1528 (above) *Trisetella cordeliae* has an intriguingly shaped and prettily coloured flower (Grower: Judy Carney).



Figure 4.1529 (above) *Trisetella cordeliae* flowers and leaves are both attractive (Grower: Judy Carney).

TRISETELLA

Trisetella dressleri (Luer) Luer

Publication: *Phytologia* 47: 57 (1980)

Etymology: Named in honour of Dr. Robert L. Dressler, orchid taxonomist, author, and expert on orchids of Central America.

Homotypic synonyms: *Masdevallia dressleri* Luer, *Triaristella dressleri* (Luer) Luer, *Triaristellina dressleri* (Luer) Rauschert.

Morphology: *Plant* 1.2–2.2 cm tall. *Ramicaul* 0.2–0.4 cm tall. *Leaf* 1–1.8 cm long by 0.3–0.4 cm wide, tapering towards base, narrowly elliptical, apex acute, lamina erect. *Inflorescence* a congested raceme, 2.5–5 cm in length, borne from low on ramicaul. *Flower* 0.7–1 cm long, few to several in number, singly successive, spreading, synsepal concave, sepaline tails thick, short, dorsal sepaline tail longer, pedicel to 0.6 cm.

Range, elevation and habitat: *Trisetella dressleri* has been found in Panama (provinces of Coclé and Panamá) and Costa Rica (without collection data) at elevations from 650–1000 m, where it grows as an epiphyte in wet montane and cloud forest. There are bloom-time records for April, August and October for plants in nature, but it is likely that *T. dressleri* can flower at any time. Conservation status unknown.

Culture recommendations: See general notes for the genus. *Temperature* intermediate-warm to intermediate.

Comments: The flowers of several species in this genus are quite similar, but those represented here by the authors certainly stand out. *Trisetella dressleri* has small, but cute, chunky flowers with contrasting bands of yellow, as well as a shape that is unique in the genus. Plants can be floriferous, often bearing flowers when mature, and may bloom at any time of year. Not common in cultivation, *T. dressleri* can nonetheless be located in the trade with some searching.



Figure 4.1530 (above) The flower of *Trisetella dressleri* has a shape that is unique within the genus, in addition to being handsomely coloured and an engaging, if diminutive subject (Grower: Hanging Gardens).

TRISETELLA

Trisetella hirtzii Luer

Publication: *Lindleyana* 1: 190 (1986)

Etymology: Named in honour of the discoverer of this species, Alexander Charles Hirtz (1945-present), geologist, orchidologist, president of the Latin American Orchid Council, Andean representative to the Conservation Committee of the American Orchid Society and discoverer of many orchid species.

Morphology: *Plant* 1.7–2.2 cm tall. *Ramicaul* 0.4–0.5 cm tall. *Leaf* 1.3–1.7 cm long by 0.3–0.4 cm wide, petiolate, narrowly obovate, apex obtuse, lamina erect. *Inflorescence* a congested raceme, peduncle 2–2.5 cm in length, filiform, from low on ramicaul. *Flower* 2–2.4 cm tall, few in number, singly successive, widely spreading, synsepal rose, dorsal sepaline tail yellow, lateral tails white, relatively thick, pedicel minute.

Range, elevation and habitat: *Trisetella hirtzii* is thought to be endemic to a relatively small region of Ecuador (province of Morona-Santiago) in the Cordillera del Condor and Cordillera del Cutucú. It grows as an epiphyte in wet montane forest at elevations between 950–1500 m. No confirmed bloom-time records could be found, but it is likely to bloom randomly throughout the year. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool.

Comments: A truly lovely species, albeit one that is uncommon in cultivation, *Trisetella hirtzii* has flowers that are relatively distinct within the genus. In contrast with the typical maroon colouration of its congeners, this species has beautiful, veined, rosy-red sepals. A somewhat unusual and distinctive feature is the yellow dorsal sepaline tail, which contrasts with the white tails of the lateral sepals. The authors have seen numerous plants incorrectly labelled as *T. hirtzii* in collections, but the information provided here may help with proper identification. This species may flower at any time in cultivation.



Figure 4.1531 (above) *Trisetella hirtzii* is uncommon, but quite lovely (Grower: John Leathers).



Figure 4.1532 (above) *Trisetella hirtzii* flowers have a yellow dorsal sepaline tail and white laterals (Grower: Kathy Parker).

TRISETELLA

Trisetella hoeijeri Luer & Hirtz

Publication: *Lindleyana* 1: 192 (1986)

Etymology: Named for Thomas Höijer of Järfälla, Sweden, who discovered this species.

Morphology: *Plant* 2.5–3.5 cm tall. *Ramicaul* 0.3–0.4 cm tall. *Leaf* 2.2–3 cm long by 0.2–0.4 cm wide, narrowly linear, apex acute, lamina erect. *Inflorescence* a congested raceme, peduncle 4–6 cm in length, erect to sub-erect, filiform, borne from low on ramicaul. *Flower* 3.5–4 cm wide, few in number, singly successive, widely spreading, thin-textured, sepaline tails long, thin, pedicel minute.

Range, elevation and habitat: An Ecuadoran endemic, *Trisetella hoeijeri* appears to be localised to a remote region above a tiny village, north of Gualaquiza, in the Cordillera Oriental (province of Morona-Santiago). It grows as an epiphyte in cloud forest at elevations around 1800 m. This species may flower at any time in nature. It is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to intermediate-cool. *Watering* water frequently, but allow to dry briefly between waterings.

Comments: An absolute favourite of many collectors, *Trisetella hoeijeri* is a spectacular little gem. Resembling no other taxa, the stunning white flowers are unique in the genus. The flowers are proportionately huge, crystalline in texture, and lined with faint, pinkish veins. With a shape that is extremely streamlined and elegant, the elongate, gradually attenuate sepaline tails are completely unlike the abruptly emerging tails typical of this genus. Generally available and highly recommended, *Trisetella hoeijeri* can bloom at almost any time, but with periodic flushes of flowers.



Figure 4.1533 (above) The stunning blooms of *Trisetella hoeijeri* are readily produced, elegant and not easily mistaken for those of another taxon (Grower: Hanging Gardens).

TRISETELLA

Trisetella pantex (Luer) Luer

Publication: *Phytologia* 47: 57 (1980)

Etymology: From the Latin *pantex* (paunch), referring to the belly-like synsepal.

Homotypic synonyms: *Masdevallia pantex* Luer, *Triaristella pantex* (Luer) Luer, *Triaristellina pantex* (Luer) Rauschert.

Morphology: *Plant* 1.7–3.3 cm tall. *Ramicaul* to 0.3 cm tall. *Leaf* 1.5–3 cm long by 0.2–0.3 cm wide, linear to narrowly obovate, apex acute to sub-acute, lamina semi-terete, ventrally spotted purple. *Inflorescence* a congested raceme, peduncle 2–5 cm in length, erect to sub-erect, slightly verrucose, borne from low on ramicaul. *Flower* 1.5 cm tall, few in number, singly successive, spreading widely, synsepal with mentum, sepaline tails short, thick, dorsal tail longer, pedicel 0.3–0.5 cm long.

Range, elevation and habitat: *Trisetella pantex* is an epiphytic species found in wet, montane forest and cloud forest in southern Ecuador (province of Zamora-Chinchi) at elevations of 1450–2600 m. Confirmed bloom-time records only exist for September, but it is probable that this species may flower at any time in nature. This species is listed as vulnerable on the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* intermediate to cool.

Comments: With its *Masdevallia*-like flowers, it is easy to see why *Trisetella pantex* was once considered part of that genus. This charming, diminutive species deserves a place in any miniatures collection. The colouration of the flowers is typical of many *Trisetella*, but the blooms are relatively broad compared to most. It seems that *T. pantex* was once more common in collections than it is today, but this species is available from several sources. *Trisetella pantex* tends to bloom between late summer and early winter in cultivation, but it may flower at other times also.

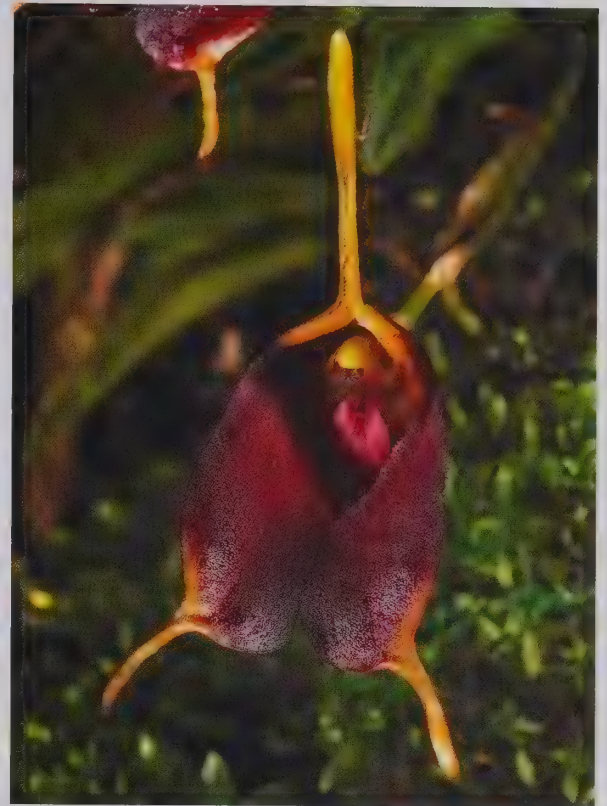


Figure 4.1534 (above) *Trisetella pantex* has relatively broad blooms reminiscent of *Masdevallia* (Grower: John Leathers).



Figure 4.1535 (above) The cute little flower of *Trisetella pantex* in profile (Grower: J & L Orchids).

TRISETELLA

Trisetella regia Königer

Publication: *Selbyana* 5: 296 (1981)

Etymology: From the Latin *regius* (regal), referring to the plant and flower size of this taxon, the largest species in the genus.

Morphology: *Plant* 3.2–7.4 cm tall. *Ramicaul* to 0.4 cm tall. *Leaf* 3–7 cm long by 0.2–0.3 cm wide, sessile, narrowly sub-terete, apex acute, lamina dorsally shallowly sulcate. *Inflorescence* a congested raceme, peduncle 15–20 cm in length, erect, slender, densely verrucose. *Flower* 7.5–8 cm tall, several in number, singly successive, sepaline tails long, thin, lip with three calli, pedicel 0.9–1.3 cm.

Range, elevation and habitat: The only known locality for *Trisetella regia* is in the department of Amazonas, Peru, between Chachapoyas and Leimebamba at an elevation around 2500 m, where it grows as an epiphyte in cloud forest. There is a bloom-time record for August, but it is probable that *T. regia* can flower at any time in nature. It is listed as critically endangered in the *El Libro Rojo de las Plantas Endémicas del Perú*, *Revista Peruana Biol.* 13, and in the IUCN Red List.

Culture recommendations: See general notes for the genus. *Temperature* cool.

Comments: *Trisetella regia* has the largest plant and flowers known within the genus so far. The tall, dark, handsome blooms are long, proportionately very narrow, and larger than the plant that bears them. They are borne in succession at the apex of a warty inflorescence. Relatively rare in cultivation, *T. regia* is slowly becoming more widely available to collectors. In cultivation, this species can flower at any time of year.



Figure 4.1536 (above) *Trisetella regia* flowers are very tall, narrow and comparatively large (Grower: Kathy Parker).

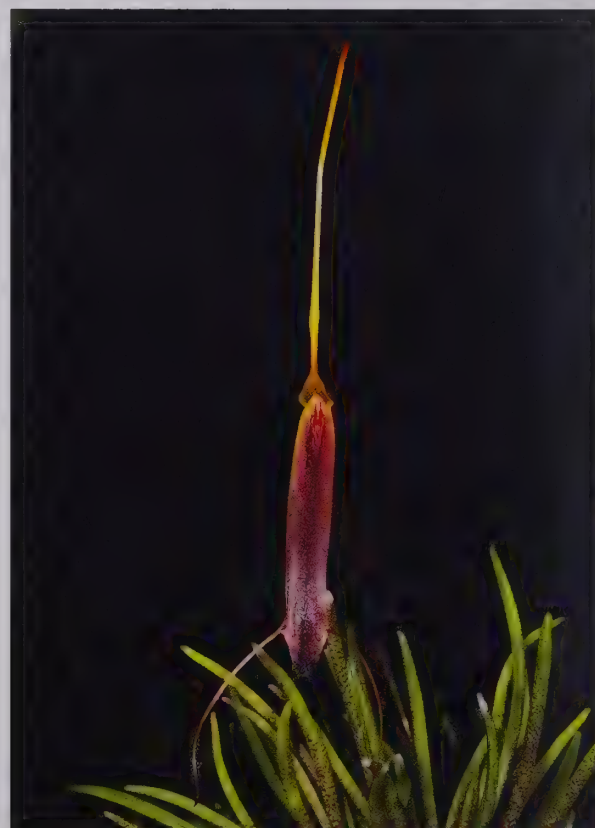


Figure 4.1537 (above) *Trisetella regia* is rare in collections, but certainly a handsome taxon (Grower: Mary Gerritsen).

TRISETELLA

Trisetella strumosa Luer & Andreetta

Publication: *Monogr. Syst. Bot. Missouri Bot. Gard.* 31: 106 (1989)

Etymology: From the Latin *strumosus* (swollen, cushion-like), referring to the large, inflated mentum of the synsepal.

Morphology: *Plant* 2.8–5.7 cm tall. *Ramicaul* 0.3–0.7 cm tall. *Leaf* 2.5–5 cm long by 0.15–0.2 cm wide, linear, apex acute, lamina fleshy. *Inflorescence* a congested raceme, peduncle 7–10 cm in length, erect to sub-erect, verrucose (except distally), borne low on ramicaul. *Flower* 1.7–2 cm tall, few in number, singly successive, sepaline tails long, thin, clavate, mentum large, inflated, pedicel 0.6–0.8 cm long.

Range, elevation and habitat: This species is only known from one locality in the province of Morona-Santiago, Ecuador, in the Cordillera del Condor. It grows as an epiphyte in cloud forest east of Chuchumletza, at elevations of 1500–1650 m. There are collection records of flowering plants for May, but it is likely that this species can flower at other times also. This species is listed as endangered in the *Libro Rojo Pl. Endémic. Ecuador 2000*, and in the IUCN Red List.

Culture recommendations: See general notes for genus. *Temperature* cool.

Comments: Another species not easily confused with any others in the genus, the unusual, inflated flowers of *Trisetella strumosa* have a strange, slightly backward-pointing protuberance that is a distinguishing characteristic. Additionally, the dorsal sepal and basal half of the lateral sepals are dark yellow, graduating towards red at the apex. The relatively long, clubbed sepaline tails are of a lighter yellow. Rare in collections, this species can be found with diligent searching. In common with many other species of this genus, *T. strumosa* can bloom at any time in cultivation.



Figure 4.1538 (above) The blooms of *Trisetella strumosa* have a characteristic rear protuberance that makes them seem particularly inflated. It is a distinguishing characteristic (Grower: Hanging Gardens).

Figure 4.1539 (overleaf) A pair of beautiful *Trisetella strumosa* blooms in detail (Grower: Hanging Gardens).



Zootrophion Luer

Publication: Luer, C. A., 1982, *Selbyana* 7: 80

Subfamily: Epidendroideae
Tribe: Epidendreae
Subtribe: Pleurothallidinae

Type species: *Specklinia atropurpurea* Lindley, 1842, now *Zootrophion atropurpureum* [Lindley] Luer, 1982.

Heterotypic synonym: *Epibator* Luer.

Etymology: From the Greek *zootrophion* (menagerie), referring to the fancied resemblance of the flowers to the heads of animals.

Profile: A genus of more than 20 epiphytic species from the Greater Antilles, and Nicaragua south to Bolivia. They occur in cloud forest at elevations of up to 2100 m.

General morphology: *Plant* sympodial, clumping, erect, branching. *Ramicaul* erect, enclosed in tubular bracts, unifoliate. *Leaf* petiolate, elliptic-obovate to sub-orbicular, apex acute to rounded, lamina erect to spreading, leathery. *Inflorescence* a raceme, sessile, single-flowered, often more than one simultaneous inflorescence, borne near the apex of the ramicaul. *Flower* spreading to nodding, resupinate, lateral sepals connate, all three sepals fused at base, apices forming flowers with only a small opening at either side, petals small, obscured, free, lip proportionately large, trilobed, articulated to column foot, column toothed at apex, foot stout, pollinia 2.

General culture notes: *Substrate* mount on cork bark, rough wood shingles, rough-barked hardwood or small, semi-dense tree fern plaques, using New Zealand *Sphagnum* moss around the roots. These species may also be cultivated in small pots using moss or a fine bark mix. Several of the bigger species grow too large for mounts, and the weight of the plant may eventually dislodge them. *Temperature* dependent upon species. *Light* medium shade. *Watering* keep moist, excellent drainage. These species has no dormant period. *Humidity* high. *Air movement* good to brisk. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly. Pleurothallids, including *Zootrophion*, are prone to bean yellow mosaic virus, which is introduced by aphids. Ensure that plants are kept free of these pests.



Figure 4.1540 (above) The fantastical, ivory coloured flower of *Zootrophion vulturiceps* 'Kasey' (Certificate of Botanical Recognition; Certificate of Horticultural Merit, American Orchid Society) has an almost sculptured appearance. This Costa Rican endemic grows to approximately 20 cm tall (Grower: MarniTurkel).

ZOOTROPHION

Zootrophion griffin Luer

Publication: *Selbyana* 7: 82 (1982)

Etymology: Referring to the resemblance of the flower to the head of the mythical griffin, a creature with the head and wings of an eagle, and the body of a lion.

Morphology: *Plant* 6–15 cm tall. *Ramicaul* 3–5 cm tall, stout. *Leaf* 3–10 cm long by 2–4 cm wide, shortly petiolate, broadly elliptical, apex obtuse to rounded, lamina erect to spreading, ventrally suffused with purple. *Inflorescence* a raceme, abbreviated, peduncle 0.5 cm long, 1–3 simultaneous inflorescences. *Flower* to 1.5 cm long, 1–3 successive or simultaneous, pedicels to 0.4 cm long. Flowers vary from nearly solid, blackish purple to whitish-yellow with dark, wine-red spots.

Range, elevation and habitat: *Zootrophion griffin* is thought to be endemic to Ecuador, on both the eastern and western Andean slopes. It is found in the provinces of El Oro, Napo and Zamora-Chinchipec at elevations from 600–1500 m. There is also a collection record of 89 m in El Oro. *Zootrophion griffin* grows as an epiphyte in wet forest and cloud forest, and has been found in trees near Río Jatunyacu, Río Jamboe and Río Zamora. This species is listed as near-threatened on the IUCN Red List.

Culture recommendations: See general culture recommendations for genus. *Temperature* intermediate, but the authors have seen plants thrive in cool growing collections.

Comments: The bizarre, but endearing flowers of *Zootrophion griffin* have their own strange appeal. The flowers are usually very dark in colour and cryptic, hiding at the base of the leaf blades, often necessitating a close inspection of the plants in order to locate them. The handsome plants have broad, oblong leaves that are purplish underneath, and mature plants often bear one or more blooms at any time. *Zootrophion griffin* is said to grow as large as 15 cm tall, although the authors have seen many plants, none of which have been over 7.5 cm in height.



Figure 4.1541 (above) *Zootrophion griffin* has dark, cryptic blooms of intriguing appeal (Grower: Marni Turkel).



Figure 4.1542 (above) A series of *Zootrophion griffin* flowers beneath their attractive leaves (Grower: John Leathers).

Zygostates Lindl.

Publication: Lindley, J., 1837, *Edwards's Bot. Reg.* 23: t. 1927

Subfamily: Epidendroideae

Tribe: Maxillarieae

Subtribe: Oncidiinae (formerly Ornithocephalinae)

Etymology: From the Greek *zygos* (yoked) and *statos* (fixed), referring to the symmetrical pair of appendages on the base of column of the type species, which resemble a yoke.

Type species: *Zygostates cornuta* Lindl., 1837, *Edwards's Bot. Reg.* 23: t. 1927.

Heterotypic synonyms: *Dactylostylis* Scheidw., *Dipteranthus* Barb.Rodr.

Profile: A genus of over 20 epiphytic species from warm, humid areas at elevations from near sea level to 1000 m. They occur in Colombia, Ecuador, Peru, Bolivia, Venezuela, Guyana, Suriname, Brazil, Argentina and Paraguay, with the majority of species known from southern Brazil.

Morphology: *Plant* sympodial, often fan-shaped, erect to pendent, clumping, branching at base, roots fine, numerous. *Pseudobulb* absent or small, if present usually somewhat laterally compressed, usually covered by bases of persistent, imbricating leafy bracts often regarded as leaves, leaf apical, uni- or bifoliate. *Leaf* bifacial, dorsoventrally flattened, shortly petiolate to sessile, distichous, fleshy or leathery. *Inflorescence* a raceme, erect to pendent, slender, often many ridged, lateral from base of pseudobulb or axillary from between leafy bracts. *Flower* small, few to many in number, complex, usually resupinate, simultaneous, often nodding or facing apex, translucent white or greenish yellow, sepals and petals free, subsimilar, segments spreading or sepals reflexed, lip entire, lacking spur, usually glandular and callose near base, column short, slender, rostellum conspicuous, often exceeding the length of the rest of the column, anther shortly or conspicuously beaked, pollinia in 2 equal or unequal pairs.

General culture notes: *Substrate* mount on cork bark, rough wood shingles, rough-barked hardwood or possibly tree fern, using New Zealand *Sphagnum* moss around the roots. The authors have rarely seen members of this genus grown in pots. Plants favour good air circulation around the roots and dislike continuous moisture. *Temperature* dependent upon species. *Light* generally medium shade. *Watering* keep moist, with excellent drainage. These species have no dormant period. *Humidity* high. *Air movement* good. *Propagation* by division or seed. *Fertilise* at 1/4 to 1/2 strength weekly, but reduce slightly during winter.



Figure 4.1543 (above) A mounted *Zygostates apiculata* specimen plant in profuse flower is a wonderful sight (Grower: Anna Chai).

ZYGOSTATES

Zygostates alleniana Kraenzl.

Publication: *Notizbl. Königl. Bot. Gart. Berlin* 2: 55 (1898)

Etymology: Named for Cyrill Allen, who collected the type specimen.

Heterotypic synonyms: *Dipteranthus lindmanii* Kraenzl., *Zygostates aquinoi* Schltr., *Zygostates lindmanii* (Kraenzl.) Schltr.

Morphology: *Plant* to 3 cm tall, fan-like. *Pseudobulb* 0.3–0.45 cm tall by 0.25–0.30 cm wide, minute, ovoid, slightly compressed, partially obscured by several leafy bracts, uni- or bifoliate. *Leaf* and similar leafy bracts to 3 cm long by up to 0.4 cm wide, sessile, linear-lanceolate, conduplicate, apex acute, lamina usually dorsoventrally flattened, somewhat triangular to V-shaped in cross-section, abaxially keeled, erect to sub-erect, fleshy, rigid. *Inflorescence* a congested raceme, to 7 cm in length, erect to sub-erect. *Flower* to 0.5 cm in diameter, to 10 in number, simultaneous, non-resupinate, widely spreading, petal margins erose fimbriate.

Range, elevation and habitat: *Zygostates alleniana* occurs in northeastern Argentina (provinces of Chaco, Formosa, Jujuy and Misiones), Brazil (states of São Paulo, Paraná, Santa Catarina and Rio Grande do Sul), Paraguay (Guaira and San Pedro) and possibly Peru. It grows as a locally common epiphyte in wet montane forest. No elevation or bloom-time records could be found, although one specimen was collected in bloom in Paraguay in November.

Culture recommendations: *Temperature* intermediate.

Comments: A true gem, *Zygostates alleniana* has proportionately large, intricate blossoms with fringed petal margins. The sheer mass of flowers when in full bloom is often more than that of the plant itself. An ideal plant to grow to specimen size, *Z. alleniana* takes up little space, but can be very rewarding. It tends to bloom in mid-spring to early summer in cultivation.



Figure 4.1544 (above) A pretty *Zygostates alleniana* plant in bloom (Grower: Marni Turkel).



Figure 4.1545 (above) The flowers of *Zygostates alleniana* in detail (Grower: Linda Locatelli).

ZYGOSTATES***Zygostates apiculata*** (Lindl.) Toscano**Publication:** *Lindleyana* 16: 197 (2001)**Etymology:** From the Latin *apiculatus* (apiculate, coming to a fine point), probably referring to the leaves.**Homotypic synonym:** *Ornithocephalus apiculatus* Lindl.**Heterotypic synonyms:** *Dipteranthus estradae* Dodson, *Dipteranthus planifolius* (Rchb.f.) Garay, *Ornithocephalus planifolius* Rchb.f.**Morphology:** Plant to 14 cm tall, erect. *Pseudobulb* small, to 0.7 cm tall by 0.3 cm wide, orbicular to ovoid, partially obscured by 7–8 leafy bracts, unifoliate. *Leaf* 2–7 cm long by 0.3–0.8 cm wide, narrowly oblong to narrowly lanceolate, apex acute, lamina erect to slightly spreading, thick, rigid, fleshy, punctate ventrally. *Inflorescence* a semi-congested raceme, to 9 cm in length, generally descending to pendent. *Flower* 0.6–0.8 cm tall, many in number, simultaneous, spreading, facing base of inflorescence.**Range, elevation and habitat:** A widespread epiphytic species, *Zygostates apiculata* is found in Colombia, western Ecuador, Peru, Bolivia (department of Santa Cruz) and Venezuela (states of Aragua, Bolivar, Distrito Federal and Falcon). It grows in coastal hill cloud forest, seasonally dry forest and wet montane forest at elevations of 60–1800 m. This species can flower at almost any time in nature. It can be locally common.**Culture recommendations:** *Temperature* warm to intermediate-cool.**Comments:** Found in many collections labelled as *Dipteranthus estradae*, *Zygostates apiculata* is a relatively popular and available plant, but it deserves to be even more widely grown. As with *Z. alleniana*, this is a floriferous species capable of producing a multitude of eye-catching, golden yellow sprays of flowers on a small plant. It is certainly worthy of growing to specimen size. *Zygostates apiculata* may bloom in any month of the year.**Figure 4.1546 (above)** *Zygostates apiculata* flowers cascade from their wall mount (Grower: J & L Orchids).**Figure 4.1547 (above)** Detail of two *Zygostates apiculata* inflorescences (Grower: MarniTurkel).

ZYGOSTATES

Zygostates bradei (Schltr.) Garay

Publication: *Bot. Mus. Leaf.* 21: 263 (1967)

Etymology: Named in honour of the collector of the type specimen, Alexander Curt Brade (1881–1971), a German botanist who specialised in Brazilian orchids and ferns. Brade worked at the botanical garden in Rio de Janeiro.

Homotypic synonym: *Dipteranthus bradei* Schltr.

Heterotypic synonyms: *Dipteranthus duchii* Pabst, *Zygostates rotundiglossa* Pabst.

Morphology: *Plant* 2–6 cm tall. *Pseudobulb* 0.3 cm tall by 0.2 cm wide, ovoid, unifoliate. *Leaf* and similar leafy bracts to 4.5 cm long by 0.5 cm wide, subpetiolate, linear-lanceolate to somewhat spatulate, apex acute, usually shortly apiculate, lamina dorsally slightly sulcate, ventrally somewhat keeled, erect, thinly leathery. *Inflorescence* a raceme, to 9 cm in length, sub-erect to descending, lateral from base of mature pseudobulb. *Flower* to 1 cm long, to 16 in number, simultaneous, usually resupinate, widely spreading, sepals reflexed, petals incurved, forward pointing, flanking column.

Range, elevation and habitat: A Brazilian endemic, *Zygostates bradei* grows in the states of Pernambuco, Alagoas, São Paulo, Paraná and Santa Catarina. It is found growing epiphytically on the outer twigs of branches, often on myrtles, overhanging rivers and streams in tropical, moist, lowland to low montane forest at elevations from 50–700 m. It may also occur in the forests of Rio de Janeiro, Espírito Santo and Bahia. No bloom-time records could be found, and no information on conservation status is known.

Culture recommendations: *Temperature* warm.

Comments: This species seems to be rare in cultivation, at least in the United States, but it is well worth searching for. If plants are obtained, their propagation for dispersal to other collectors is encouraged. The flowers of *Zygostates bradei* are different from those of most other species in the genus; they have reflexed sepals and forward pointing petals, and are of an unusual, pale green colour that is translucent when wet. The only plants that the authors have seen in cultivation bloomed between late spring to early summer.



Figure 4.1548 (above) *Zygostates bradei* flowers are predominantly green (Grower: J & L Orchids).



Figure 4.1549 (above) When wet, *Zygostates bradei* flowers become rather translucent (Grower: J & L Orchids).

ZYGOSTATES

Zygostates lunata Lindl.

Publication: *Edwards's Bot. Reg.* 23: t. 1927 (1837)

Etymology: From the Latin *luna* (moon), possibly referring to the prominent lunate petals.

Heterotypic synonyms: *Dactylostylis fimbriata* Scheidw., *Epidendrum trilobatum* Vell., *Ornithocephalus navicularis* Barb.Rodr.

Morphology: Plant to 10 cm tall, fan-shaped, leaves/leafy bracts 5–7 in number. *Pseudobulb* absent. *Leaf* to 7 cm long by 2 cm wide, base conduplicate below abscission point, oblong-spathulate, apex acute, lamina erect to sub-erect, thinly leathery. *Inflorescence* a semi-congested raceme, 10–15 cm in length, peduncle ridged, sub-erect to pendent, lateral, axillary. *Flower* 0.6–0.8 cm in diameter, to 30 or more number, usually simultaneous, resupinate, widely spreading, sepals reflexed, petals and lip fimbriate, petals proportionately large.

Range, elevation and habitat: Endemic to Brazil, *Zygostates lunata* is found in the states of Minas Gerais, Espírito Santo, São Paulo, Rio de Janeiro and Paraná. It grows at elevations of 30–1500 m as an epiphyte on mossy trees in montane forests, usually near river banks. This habitat usually receives heavy condensation nightly. In the state of Paraná, it has also been found in *Araucaria angustifolia* forests. This species flowers in late spring and early summer in nature. No information on conservation status could be found.

Culture recommendations: See general notes for genus. *Temperature* intermediate.

Comments: *Zygostates lunata* has tiny, brightly coloured flowers. When viewed individually, they are amongst the most striking in the genus. Both the petals and lip are fringed, but the petal is proportionately very large while the lip is small and cup-shaped. The descending inflorescences can be densely flowered, and the blooms open simultaneously, putting on a spectacular show. This species is sometimes available, but rather surprisingly, it is not commonly seen in collections. Plants in cultivation have been observed to flower in every season.



Figure 4.1550 (above) A graceful, pendent inflorescence of *Zygostates lunata* (Grower: Jeff Tyler).



Figure 4.1551 (above) *Zygostates lunata* in situ near the border of São Paulo and Minas Gerais states, Brazil, at approximately 1000 m elevation. It grew on small branches and twigs close to the ground in a shady area near a river (Photo: Leonardo Desordi Lobo).



Figure 4.1552 (above) Detail of a *Zygostates lunata* inflorescence shows the fine, fringed margins of the flowers (Grower: Pamela Leaver).

Figure 4.1553 (below) *Zygostates lunata* growing amongst the characteristically veined leaves of *Microgramma* ferns. Photographed here in the municipality of Analândia, state of São Paulo, Brazil, at 700 m elevation, where the climate is tropical with a dry winter (Photo: Rafael Bortoloti).

ZYGOSTATES

Zygostates multiflora (Rolfe) Schltr.

Publication: *Arch. Bot. São Paulo* 1: 295 (1926)

Etymology: From the Latin *multi* (many) and *florem* (flower), referring to the many-flowered inflorescence.

Homotypic synonyms: *Dipteranthus multiflorus* (Rolfe) I.Bock & Seehawer, *Ornithocephalus multiflorus* Rolfe.

Morphology: *Plant* 2.5–7 cm tall, somewhat fan-shaped, densely clumping, obscured by sheaths of lateral leaves and bracts. *Pseudobulb* to 0.9 cm tall by 0.15 cm wide, ovoid, slightly laterally compressed, leafy bracts, several in number, uni- or bifoliate. *Leaf* and 2–10 similar leafy bracts to 5 cm long by 0.7 cm wide, linear-lanceolate, lanceolate to slightly spatulate, apex acute, lamina usually erect, somewhat fleshy. *Inflorescence* a loose raceme, to 12 cm long, 1–4 in number, erect to pendent, subflexuous, lateral, emerging from base of pseudobulb, axillary between leafy bracts. *Flowers* to 0.7 cm tall, to ca. 20 in number or more in cultivation, simultaneous, usually resupinate, sepals ovate, apex sub-obtuse, concave, reflexed, petals spreading, flat, unguiculate, reniform-orbicular towards apex, minutely crenulate, lip pandurate-oblong, incurved and concave at middle, callus, large, sub-orbicular, apex green, acute, incurved-apiculate, column wide, light green, wings falcate-linear, apex acute, rostellum linear, incurved, pedicel to 0.35 cm long.

Range, elevation and habitat: *Zygostates multiflora* is a common Brazilian endemic (states of Rio de Janeiro, São Paulo and Paraná). It grows on trees and shrubs, sometimes as a canopy twig epiphyte, but also in more shaded situations, in primary forest, usually near river banks. It occurs at elevations of 500–1400 m. This species can form large colonies and blooms in October through to December.

Culture recommendations: *Temperature* intermediate to intermediate-cool.



Figure 4.1554 (above) A vertical mount bears a *Zygostates multiflora* specimen plant in heavy flower, its many inflorescences hanging beautifully in display (Grower: Andy's Orchids).

ZYGOSTATES

Comments: *Zygostates multiflora* is an uncommon species in cultivation, but a delectable one even so. It can produce a surprisingly large storm of white flowers that are held on graceful, arching inflorescences which can nearly obscure the plants. Close examination of the flowers reveals a lovely, crystalline texture, as well as a glossy, bright green callus on the lip. Though possibly an isolated occurrence, the authors have observed adventitious plantlets on the inflorescences of some plants. This species blooms in the summer months in cultivation. *Zygostates multiflora* is sometimes mislabelled as *Z. pustulata* in collections. Any perceived similarity most likely lies in the mutually small plant size and tiny white flowers, but the two cannot be confused on close examination. The flowers of *Zygostates pustulata* are readily distinguished by their sepals, which are much smaller than the petals, by the very concave lip, the simple column lacking appendages, and by the rostellum, which is swollen and twisted at the apex.



Figure 4.1555 (above) A trio of *Zygostates multiflora* inflorescences photographed in profile, each variably orientated with respect to the plant, making for a wonderful display (Grower: Andy's Orchids).

ZYGOSTATES

Zygostates pellucida Rchb.f.

Publication: *Ann. Bot. Syst.* 6: 564 (1863)

Etymology: From the Latin *pellucidus* (pellucid, translucent), probably in reference to the thin-textured sepals.

Homotypic synonym: *Dipteranthus pellucidus* (Rchb.f.) Cogn.

Heterotypic synonyms: *Dipteranthus pseudobulbiferus* (Barb.Rodr.) Barb. Rodr., *Ornithocephalus pseudobulbiferus* Barb.Rodr.

Morphology: *Plant* to 12 cm tall. *Pseudobulb* to 2 cm tall by 0.6 cm wide, narrowly ovoid, faintly ridged, greyish-green, unifoliate. *Leaf* to 11 cm long by 2.2 cm wide, petiolate, conduplicate at base, lanceolate, oblong-lanceolate or oblong, occasionally falcate, apex acute to obtuse, apiculate, lamina erect to sub-erect, densely and minutely papillose on both surfaces, margins recurved. *Inflorescence* a semi-congested raceme, to 10 cm in length, occasionally longer, one to several in number, short pedunculate, pendent, softly verrucose, lateral. *Flower* to 0.6 cm tall, to 40 in number, simultaneous, resupinate, widely spreading, slightly nodding, sepal margins usually recurved towards apex, petals slightly asymmetric, spathulate, twisting at base, arching over column, projecting forward, lip oblong to ovate-triangular when spread, slightly bilobed at base.

Range, elevation and habitat: Endemic to southeastern and southern Brazil (states of Espírito Santo, São Paulo, Rio de Janeiro, Santa Catarina and Rio Grande do Sul), *Zygostates pellucida* is an occasionally encountered species that grows in the Organ mountains at elevations of 100–1200 m. It occurs as a low to mid-tree level epiphyte, in both primary and secondary forest. It has been found growing on Myrtaceae in secondary disturbed forest on numerous occasions. This species flowers in the spring in nature.

Culture recommendations: *Temperature* warm.

Comments: All of the 20 or so species of *Zygostates* are collectable, and *Z. pellucida* is no exception. The elongate, emerald green and white blooms are complex in structure, and plants of this species can be quite floriferous, bearing several simultaneous, pendent inflorescences. The ovate, grey-green leaves are also rather handsome, which is an added bonus. Whilst not common in collections, *Z. pellucida* is frequently available in the trade. Flowering in cultivation tends to occur between mid-spring and early summer, but plants will occasionally bloom at other times of year.



Figure 4.1556 (above) Detail of the *Zygostates pellucida* inflorescence (Grower: Denver Botanic Gardens).



Figure 4.1557 (above) A shower of pendent inflorescences hang from a *Zygostates pellucida* plant (Grower: Cary White).



Appendix I

Presented here is a master list of orchid species not addressed in this work that are regarded as falling within the parameters set in this book for the miniature orchid category.

<i>Acianthera aculeata</i>	<i>Acianthera yauaperyensis</i>
<i>Acianthera agathophylla</i>	<i>Adamantina miltonioides</i>
<i>Acianthera angustifolia</i>	<i>Adenoncos papuana</i>
<i>Acianthera asaroides</i>	<i>Adenoncos parviflora</i>
<i>Acianthera biceps</i>	<i>Adenoncos suborbicularis</i>
<i>Acianthera bissei</i>	<i>Adenoncos sumatrana</i>
<i>Acianthera boliviana</i>	<i>Adenoncos uniflora</i>
<i>Acianthera breviflora</i>	<i>Adenoncos vesiculosa</i>
<i>Acianthera carinata</i>	<i>Adenoncos virens</i>
<i>Acianthera chamelopoda</i>	<i>Aerangis appendiculata</i>
<i>Acianthera chionopa</i>	<i>Aerangis calantha</i>
<i>Acianthera compressicaulis</i>	<i>Aerangis oligantha</i>
<i>Acianthera cordatifolia</i>	<i>Aerangis seegeri</i>
<i>Acianthera dodsonii</i>	<i>Aeranthes adenopoda</i>
<i>Acianthera erosa</i>	<i>Aeranthes africana</i>
<i>Acianthera erythrogramma</i>	<i>Aeranthes bathieana</i>
<i>Acianthera esmeraldae</i>	<i>Aeranthes campbelliae</i>
<i>Acianthera eximia</i>	<i>Aeranthes orophila</i>
<i>Acianthera fenestrata</i>	<i>Aeranthes setiformis</i>
<i>Acianthera garciae</i>	<i>Aeranthes setipes</i>
<i>Acianthera granitica</i>	<i>Aeranthes subramosa</i>
<i>Acianthera heteropetala</i>	<i>Aeranthes tenella</i>
<i>Acianthera hygrophila</i>	<i>Anathallis abbreviata</i>
<i>Acianthera jordanensis</i>	<i>Anathallis acuminata</i>
<i>Acianthera juxtaposita</i>	<i>Anathallis adenochila</i>
<i>Acianthera klotzchiana</i>	<i>Anathallis angulosa</i>
<i>Acianthera krahni</i>	<i>Anathallis ariasii</i>
<i>Acianthera langeana</i>	<i>Anathallis barbulata</i>
<i>Acianthera litensis</i>	<i>Anathallis brevipes</i>
<i>Acianthera melanoglossa</i>	<i>Anathallis burzlaffiana</i>
<i>Acianthera mexiae</i>	<i>Anathallis carnosifolia</i>
<i>Acianthera miqueliana</i>	<i>Anathallis casualis</i>
<i>Acianthera morenoi</i>	<i>Anathallis caudatipetala</i>
<i>Acianthera moronae</i>	<i>Anathallis ciliolata</i>
<i>Acianthera odontotepala</i>	<i>Anathallis clandestina</i>
<i>Acianthera ofella</i>	<i>Anathallis comayaguensis</i>
<i>Acianthera papulifolia</i>	<i>Anathallis coripatae</i>
<i>Acianthera phoenicoptera</i>	<i>Anathallis corticicola</i>
<i>Acianthera prognatha</i>	<i>Anathallis cuspidata</i>
<i>Acianthera punctatiflora</i>	<i>Anathallis dalessandroi</i>
<i>Acianthera saundersiana</i>	<i>Anathallis dimidia</i>
<i>Acianthera serpentina</i>	<i>Anathallis duplooyi</i>
<i>Acianthera tanyae</i>	<i>Anathallis endresii</i>
<i>Acianthera unguicallosa</i>	<i>Anathallis escalarensis</i>
<i>Acianthera venulosa</i>	<i>Anathallis fastigiata</i>

Figure 5.1 (facing page) The flowers of *Bulbophyllum* aff. *refractum* are beauties with a somewhat sombre appeal (Grower: Gerardus Staal).

Anathallis fernandiana
Anathallis fractiflexa
Anathallis francesiana
Anathallis funerea
Anathallis gehrtii
Anathallis githaginea
Anathallis gracilentia
Anathallis grayumii
Anathallis haberi
Anathallis helmutii
Anathallis herpetophyton
Anathallis holstii
Anathallis humilus
Anathallis imberbis
Anathallis inversa
Anathallis involuta
Anathallis iota
Anathallis jamaicensis
Anathallis jesupiorum
Anathallis kautskyii
Anathallis kleinii
Anathallis kuhniae
Anathallis laciniata
Anathallis lasioglossa
Anathallis lichenophila
Anathallis linearifolia
Anathallis liparanges
Anathallis lobiserrata
Anathallis malmeana
Anathallis marginata
Anathallis mazei
Anathallis mediocarinata
Anathallis megalophora
Anathallis microblephara
Anathallis microphyta
Anathallis miguelii
Anathallis millepeda
Anathallis minima
Anathallis minutalis
Anathallis montipelladensis
Anathallis muricaudata
Anathallis oblanceolata
Anathallis ordinata
Anathallis pachyphyta
Anathallis paranaensis
Anathallis paranapiacabensis
Anathallis peroupavae
Anathallis petropolitana
Anathallis polygonoides
Anathallis recurvipetala
Anathallis reedii
Anathallis reptilis
Anathallis ricii
Anathallis rubrolimbata
Anathallis rudolfii

Anathallis sanchezii
Anathallis seriata
Anathallis sertularioides
Anathallis simpliciglossa
Anathallis soratana
Anathallis spannageliana
Anathallis spathuliformis
Anathallis spiculifera
Anathallis steinbuchiae
Anathallis tigridentis
Anathallis unduavica
Anathallis vitorinoi
Anathallis welteri
Ancistrorhynchus brevifolius
Ancistrorhynchus parviflorus
Andinia dalstroemii
Andinia dielsii
Andinia hystriosa
Andinia ibex
Andinia panica
Andinia pensilis
Andinia pentamytera
Andinia pogonion
Andinia trimytera
Andinia vestigipetala
Angraecopsis amaniensis
Angraecopsis breviloba
Angraecopsis lovetii
Angraecopsis malawiensis
Angraecopsis parva
Angraecopsis pobeguinii
Angraecopsis pusilla
Angraecum aloifolium
Angraecum andasibeense
Angraecum ankeranense
Angraecum aviceps
Angraecum bemarkivoense
Angraecum bicallosum
Angraecum brachyrhopalon
Angraecum breve
Angraecum brevicornu
Angraecum chaetopodum
Angraecum chamaeanthus
Angraecum clareae
Angraecum clavigerum
Angraecum cordemoyi
Angraecum curvicalcar
Angraecum dasycarpum
Angraecum decipiens
Angraecum drouhardii
Angraecum dryadum
Angraecum flavidum
Angraecum geniculatum
Angraecum hermannii
Angraecum humblotianum

<i>Angraecum humile</i>	<i>Biermannia sigaldii</i>
<i>Angraecum kraenzlinianum</i>	<i>Bogoria papuana</i>
<i>Angraecum lecomtei</i>	<i>Bogoria taeniorhiza</i>
<i>Angraecum letouseyi</i>	<i>Bolusiella batesii</i>
<i>Angraecum liliodorum</i>	<i>Bolusiella iridifolia</i>
<i>Angraecum littorale</i>	<i>Bolusiella talbotii</i>
<i>Angraecum madagascariense</i>	<i>Brachionidium andreetae</i>
<i>Angraecum meirax</i>	<i>Brachionidium arethusa</i>
<i>Angraecum melanostictum</i>	<i>Brachionidium ballatrix</i>
<i>Angraecum microcharis</i>	<i>Brachionidium brachycladum</i>
<i>Angraecum minus</i>	<i>Brachionidium brevicaudatum</i>
<i>Angraecum minutum</i>	<i>Brachionidium capillare</i>
<i>Angraecum muscicolum</i>	<i>Brachionidium carmeniae</i>
<i>Angraecum nanum</i>	<i>Brachionidium cruzae</i>
<i>Angraecum palmicolum</i>	<i>Brachionidium dentatum</i>
<i>Angraecum parvulum</i>	<i>Brachionidium diaphanum</i>
<i>Angraecum pergracile</i>	<i>Brachionidium dodsonii</i>
<i>Angraecum perhumile</i>	<i>Brachionidium ecuadorensense</i>
<i>Angraecum perparvulum</i>	<i>Brachionidium escobarii</i>
<i>Angraecum pseudopetiolatum</i>	<i>Brachionidium filamentosum</i>
<i>Angraecum pterophyllum</i>	<i>Brachionidium inkaterrense</i>
<i>Angraecum pumilio</i>	<i>Brachionidium jesupiae</i>
<i>Angraecum rhynchoglossum</i>	<i>Brachionidium julianii</i>
<i>Angraecum rigidifolium</i>	<i>Brachionidium lehmannii</i>
<i>Angraecum rubellum</i>	<i>Brachionidium longicaudatum</i>
<i>Angraecum sacciferum</i>	<i>Brachionidium loxense</i>
<i>Angraecum salazianum</i>	<i>Brachionidium lucanoideum</i>
<i>Angraecum spicatum</i>	<i>Brachionidium meridense</i>
<i>Angraecum stella-africae</i>	<i>Brachionidium miniusculum</i>
<i>Angraecum sterrophyllum</i>	<i>Brachionidium muscosum</i>
<i>Angraecum tamarindicolum</i>	<i>Brachionidium operosum</i>
<i>Angraecum tenellum</i>	<i>Brachionidium parvum</i>
<i>Angraecum vesiculatum</i>	<i>Brachionidium peltarion</i>
<i>Angraecum vesiculiferum</i>	<i>Brachionidium phalangiferum</i>
<i>Angraecum viridiflorum</i>	<i>Brachionidium piuntzae</i>
<i>Ascochilopsis lobata</i>	<i>Brachionidium polypodium</i>
<i>Ascochilus mindanaensis</i>	<i>Brachionidium portillae</i>
<i>Barbosella circinata</i>	<i>Brachionidium pteroglossum</i>
<i>Barbosella crassifolia</i>	<i>Brachionidium pusillum</i>
<i>Barbosella gardneri</i>	<i>Brachionidium renzii</i>
<i>Barbosella geminata</i>	<i>Brachionidium restrepioides</i>
<i>Barbosella macaheensis</i>	<i>Brachionidium rugosum</i>
<i>Barbosella orbicularis</i>	<i>Brachionidium sherringii</i>
<i>Barbosella portillae</i>	<i>Brachionidium simplex</i>
<i>Barbosella ricii</i>	<i>Brachionidium stellare</i>
<i>Barbosella schista</i>	<i>Brachionidium syme-morrisii</i>
<i>Barbosella spiritu-sanctensis</i>	<i>Brachionidium tetrapetalum</i>
<i>Barbosella trilobata</i>	<i>Brachionidium tuberculatum</i>
<i>Barbosella vasquezii</i>	<i>Brachionidium uxorium</i>
<i>Biermannia ciliata</i>	<i>Brachionidium valerioi</i>
<i>Biermannia flava</i>	<i>Brachionidium vasquezii</i>
<i>Biermannia jainiana</i>	<i>Brachionidium zunagense</i>
<i>Biermannia laciniata</i>	<i>Brachypeza minimipes</i>
<i>Biermannia quinquecallosa</i>	<i>Bracisepalum densiflorum</i>
<i>Biermannia sarcanthoides</i>	<i>Brassia brevis</i>

Brassia minutiflora
Bromheadia humilus
Bromheadia lohaniensis
Bulbophyllum absconditum
Bulbophyllum acanthoglossum
Bulbophyllum acutiflorum
Bulbophyllum acutilobum
Bulbophyllum adenoblepharon
Bulbophyllum adjungens
Bulbophyllum aechmophorum
Bulbophyllum aestivale
Bulbophyllum afzelii
Bulbophyllum aggregatum
Bulbophyllum alabastraceum
Bulbophyllum alagense
Bulbophyllum alatum
Bulbophyllum albociliatum
Bulbophyllum alboroseum
Bulbophyllum alleizettei
Bulbophyllum alliifolium
Bulbophyllum alticola
Bulbophyllum amauroloma
Bulbophyllum ambatoavense
Bulbophyllum amblyacron
Bulbophyllum amblyanthum
Bulbophyllum ambrense
Bulbophyllum amoenum
Bulbophyllum analamazoatrae
Bulbophyllum andohahelense
Bulbophyllum anguliferum
Bulbophyllum angustifolium
Bulbophyllum ankaizinense
Bulbophyllum ankaratranum
Bulbophyllum antennatum
Bulbophyllum antongilense
Bulbophyllum aphanopetalum
Bulbophyllum appendiculatum
Bulbophyllum appressicaule
Bulbophyllum appressum
Bulbophyllum approximatum
Bulbophyllum arachnoideum
Bulbophyllum arcuatilabium
Bulbophyllum ardjunense
Bulbophyllum argyropus
Bulbophyllum ariel
Bulbophyllum aristalabre
Bulbophyllum aristatum
Bulbophyllum armeniacum
Bulbophyllum artostigma
Bulbophyllum aschemom
Bulbophyllum ascochiloides
Bulbophyllum atropurpureum
Bulbophyllum atrorubens
Bulbophyllum aubrevillei
Bulbophyllum aureoapex

Bulbophyllum aureobrunneum
Bulbophyllum aureum
Bulbophyllum auriflorum
Bulbophyllum auritum
Bulbophyllum averynovii
Bulbophyllum baculiferum
Bulbophyllum bakoense
Bulbophyllum ballii
Bulbophyllum barbasapiensis
Bulbophyllum barbatum
Bulbophyllum barbavagabundum
Bulbophyllum baronii
Bulbophyllum bavonis
Bulbophyllum belliae
Bulbophyllum belonaeglossum
Bulbophyllum betchei
Bulbophyllum biantennatum
Bulbophyllum bicaudatum
Bulbophyllum bicoloratum
Bulbophyllum bifarium
Bulbophyllum biseriale
Bulbophyllum biserratum
Bulbophyllum bisetoides
Bulbophyllum blephariglossum
Bulbophyllum bliteum
Bulbophyllum boiteaui
Bulbophyllum bolsteri
Bulbophyllum bombycinum
Bulbophyllum bomiense
Bulbophyllum bontocense
Bulbophyllum boonjee
Bulbophyllum botryophorum
Bulbophyllum Boulbetii
Bulbophyllum bowkettiae
Bulbophyllum brachypetalum
Bulbophyllum brachyphyton
Bulbophyllum brachystachyum
Bulbophyllum brachytriche
Bulbophyllum bracteolatum
Bulbophyllum breve
Bulbophyllum brevicolumna
Bulbophyllum brevipedunculatum
Bulbophyllum brevipes
Bulbophyllum brevistylidium
Bulbophyllum bryophilum
Bulbophyllum bulliferum
Bulbophyllum cadetioides
Bulbophyllum calceolus
Bulbophyllum calimanianum
Bulbophyllum calviventer
Bulbophyllum calyptropus
Bulbophyllum campos-portoi
Bulbophyllum canlaonense
Bulbophyllum cantagallense
Bulbophyllum capilligerum

Bulbophyllum capituliflorum
Bulbophyllum capuronii
Bulbophyllum cardiobulbum
Bulbophyllum carnosisepalum
Bulbophyllum cataractarum
Bulbophyllum catenarium
Bulbophyllum cauliflorum
Bulbophyllum cavipes
Bulbophyllum centrosemifolium
Bulbophyllum cephalophorum
Bulbophyllum ceratostylis
Bulbophyllum chaetostroma
Bulbophyllum chalcochloron
Bulbophyllum chanii
Bulbophyllum chimaera
Bulbophyllum chlorascens
Bulbophyllum chlorolirion
Bulbophyllum chondriophorum
Bulbophyllum chrysendetum
Bulbophyllum chryseum
Bulbophyllum chrysotes
Bulbophyllum ciliatilabrum
Bulbophyllum ciliatum
Bulbophyllum ciliipetalum
Bulbophyllum ciliolatum
Bulbophyllum cirrhoglossum
Bulbophyllum citricolor
Bulbophyllum clavuliflorum
Bulbophyllum clinopus
Bulbophyllum coccinatum
Bulbophyllum codonanthum
Bulbophyllum coelochilum
Bulbophyllum collinum
Bulbophyllum colubrimodum
Bulbophyllum comberi
Bulbophyllum comorianum
Bulbophyllum complanatum
Bulbophyllum compressilabellatum
Bulbophyllum concatenatum
Bulbophyllum concavibasilis
Bulbophyllum conchidioides
Bulbophyllum concinnum
Bulbophyllum confertum
Bulbophyllum connatum
Bulbophyllum consimile
Bulbophyllum corallinum
Bulbophyllum cornu-cervi
Bulbophyllum corythium
Bulbophyllum crepidiferum
Bulbophyllum cribbianum
Bulbophyllum crispatisepalum
Bulbophyllum croceodon
Bulbophyllum croceum
Bulbophyllum cryptanthum
Bulbophyllum cryptostachyum

Bulbophyllum cubicum
Bulbophyllum cucullatum
Bulbophyllum cuneatum
Bulbophyllum curranii
Bulbophyllum curvicaule
Bulbophyllum curvifolium
Bulbophyllum curvimentatum
Bulbophyllum cyclanthum
Bulbophyllum cycloglossum
Bulbophyllum cyclophyllum
Bulbophyllum cymbidioides
Bulbophyllum cymbochilum
Bulbophyllum dasyphyllum
Bulbophyllum debile
Bulbophyllum decaryanum
Bulbophyllum decumbens
Bulbophyllum decurrentilobum
Bulbophyllum dekokkii
Bulbophyllum delicatulum
Bulbophyllum deminutum
Bulbophyllum dempoense
Bulbophyllum dendrochiloides
Bulbophyllum devium
Bulbophyllum devogelii
Bulbophyllum dianthum
Bulbophyllum diceras
Bulbophyllum dichaeoides
Bulbophyllum dichilus
Bulbophyllum didymotropis
Bulbophyllum diploncos
Bulbophyllum dischidiifolium
Bulbophyllum discilabium
Bulbophyllum discolor
Bulbophyllum distichobulbum
Bulbophyllum dolabrilforme
Bulbophyllum dransfieldii
Bulbophyllum dryadum
Bulbophyllum dryas
Bulbophyllum drymoglossum
Bulbophyllum dschischungarense
Bulbophyllum dulongjiangense
Bulbophyllum dunstervillei
Bulbophyllum echinochilum
Bulbophyllum echinulus
Bulbophyllum eciliatum
Bulbophyllum ecristatum
Bulbophyllum elachanthe
Bulbophyllum elegantius
Bulbophyllum elliotii
Bulbophyllum elliotii
Bulbophyllum ellipticum
Bulbophyllum emarginatum
Bulbophyllum emunitum
Bulbophyllum endotrachys
Bulbophyllum entobaptum

<i>Bulbophyllum epapillosum</i>	<i>Bulbophyllum hapalanthos</i>
<i>Bulbophyllum epibulbon</i>	<i>Bulbophyllum hassallii</i>
<i>Bulbophyllum erioides</i>	<i>Bulbophyllum helix</i>
<i>Bulbophyllum exaltatum</i>	<i>Bulbophyllum henanense</i>
<i>Bulbophyllum exiguiflorum</i>	<i>Bulbophyllum heteroblepharon</i>
<i>Bulbophyllum exile</i>	<i>Bulbophyllum heterosepalum</i>
<i>Bulbophyllum exilipes</i>	<i>Bulbophyllum hexarhopalon</i>
<i>Bulbophyllum exquisitum</i>	<i>Bulbophyllum hexurum</i>
<i>Bulbophyllum falcipetalum</i>	<i>Bulbophyllum hildebrandtii</i>
<i>Bulbophyllum farreri</i>	<i>Bulbophyllum hiljeae</i>
<i>Bulbophyllum fasciculatum</i>	<i>Bulbophyllum hirtulum</i>
<i>Bulbophyllum fenixii</i>	<i>Bulbophyllum hirundinis</i>
<i>Bulbophyllum fibratum</i>	<i>Bulbophyllum hodgsonii</i>
<i>Bulbophyllum filamentosum</i>	<i>Bulbophyllum hoehnei</i>
<i>Bulbophyllum filovagans</i>	<i>Bulbophyllum horizontale</i>
<i>Bulbophyllum fimbriatum</i>	<i>Bulbophyllum humblotii</i>
<i>Bulbophyllum fimbriperanthium</i>	<i>Bulbophyllum hyalinum</i>
<i>Bulbophyllum finisterrae</i>	<i>Bulbophyllum hydrophilum</i>
<i>Bulbophyllum fionae</i>	<i>Bulbophyllum hymenanthum</i>
<i>Bulbophyllum fischeri</i>	<i>Bulbophyllum hystricinum</i>
<i>Bulbophyllum fissipetalum</i>	<i>Bulbophyllum icteranthum</i>
<i>Bulbophyllum flavum</i>	<i>Bulbophyllum igneuenosum</i>
<i>Bulbophyllum flexuosum</i>	<i>Bulbophyllum impar</i>
<i>Bulbophyllum florulentum</i>	<i>Bulbophyllum inaequale</i>
<i>Bulbophyllum forsythianum</i>	<i>Bulbophyllum inauditum</i>
<i>Bulbophyllum fractiflexum</i>	<i>Bulbophyllum inciferum</i>
<i>Bulbophyllum francoisii</i>	<i>Bulbophyllum incumbens</i>
<i>Bulbophyllum fruticicola</i>	<i>Bulbophyllum inornatum</i>
<i>Bulbophyllum fulgens</i>	<i>Bulbophyllum insipidum</i>
<i>Bulbophyllum fuscatum</i>	<i>Bulbophyllum insolitum</i>
<i>Bulbophyllum fuscum</i>	<i>Bulbophyllum intertextum</i>
<i>Bulbophyllum gadgarrensis</i>	<i>Bulbophyllum inversum</i>
<i>Bulbophyllum galliaheneum</i>	<i>Bulbophyllum iterans</i>
<i>Bulbophyllum gamandrum</i>	<i>Bulbophyllum jackyi</i>
<i>Bulbophyllum gamblei</i>	<i>Bulbophyllum jadunae</i>
<i>Bulbophyllum geraense</i>	<i>Bulbophyllum jamaicense</i>
<i>Bulbophyllum gilgianum</i>	<i>Bulbophyllum japonicum</i>
<i>Bulbophyllum glabrum</i>	<i>Bulbophyllum japonicus</i>
<i>Bulbophyllum glandulosum</i>	<i>Bulbophyllum johannis</i>
<i>Bulbophyllum glaucifolium</i>	<i>Bulbophyllum johnsonii</i>
<i>Bulbophyllum glaucum</i>	<i>Bulbophyllum jumelleianum</i>
<i>Bulbophyllum globiceps</i>	<i>Bulbophyllum kainochiloides</i>
<i>Bulbophyllum globulus</i>	<i>Bulbophyllum kaitiense</i>
<i>Bulbophyllum gnominiferum</i>	<i>Bulbophyllum kaniense</i>
<i>Bulbophyllum gobiense</i>	<i>Bulbophyllum kautskyii</i>
<i>Bulbophyllum gomphreniiflorum</i>	<i>Bulbophyllum keekee</i>
<i>Bulbophyllum gracilipes</i>	<i>Bulbophyllum kenae</i>
<i>Bulbophyllum graciliscapum</i>	<i>Bulbophyllum kenejianum</i>
<i>Bulbophyllum grandilabre</i>	<i>Bulbophyllum kermesinum</i>
<i>Bulbophyllum griffithii</i>	<i>Bulbophyllum kestron</i>
<i>Bulbophyllum grudense</i>	<i>Bulbophyllum kieneri</i>
<i>Bulbophyllum gusdorfii</i>	<i>Bulbophyllum kirroanthum</i>
<i>Bulbophyllum halconense</i>	<i>Bulbophyllum kwangtungensis</i>

Figure 5.2 (facing page) The luscious flowers of *Cattleya reginae* are magnificent when in full bloom (Grower: Ron Parsons).



<i>Bulbophyllum nematocaulon</i>	<i>Bulbophyllum percorniculatum</i>
<i>Bulbophyllum nematopodum</i>	<i>Bulbophyllum perductum</i>
<i>Bulbophyllum nemorosum</i>	<i>Bulbophyllum perpusillum</i>
<i>Bulbophyllum neocaledonicum</i>	<i>Bulbophyllum pervillei</i>
<i>Bulbophyllum neopommeranicum</i>	<i>Bulbophyllum petiolare</i>
<i>Bulbophyllum nephropetalum</i>	<i>Bulbophyllum petrae</i>
<i>Bulbophyllum ngoyense</i>	<i>Bulbophyllum peyerianum</i>
<i>Bulbophyllum nigericum</i>	<i>Bulbophyllum peyrotii</i>
<i>Bulbophyllum nigrescens</i>	<i>Bulbophyllum phaeoneuron</i>
<i>Bulbophyllum nigriflorum</i>	<i>Bulbophyllum phormion</i>
<i>Bulbophyllum nigrilabium</i>	<i>Bulbophyllum physocoryphum</i>
<i>Bulbophyllum nigropurpureum</i>	<i>Bulbophyllum pidacanthum</i>
<i>Bulbophyllum nitens</i>	<i>Bulbophyllum piluliferum</i>
<i>Bulbophyllum novae-hiberniae</i>	<i>Bulbophyllum pipio</i>
<i>Bulbophyllum nubigenum</i>	<i>Bulbophyllum plagiopetalum</i>
<i>Bulbophyllum nubinatum</i>	<i>Bulbophyllum planiplexum</i>
<i>Bulbophyllum nummularioides</i>	<i>Bulbophyllum platypodum</i>
<i>Bulbophyllum nutans</i>	<i>Bulbophyllum pleiopterum</i>
<i>Bulbophyllum oblanceolatum</i>	<i>Bulbophyllum pleurothallidanthum</i>
<i>Bulbophyllum obscuriflorum</i>	<i>Bulbophyllum pleurothallopsis</i>
<i>Bulbophyllum obtusum</i>	<i>Bulbophyllum plicatum</i>
<i>Bulbophyllum ochrochlamys</i>	<i>Bulbophyllum plumula</i>
<i>Bulbophyllum octorrhinipetalum</i>	<i>Bulbophyllum poekilon</i>
<i>Bulbophyllum odontopelatum</i>	<i>Bulbophyllum poilanei</i>
<i>Bulbophyllum odontostigma</i>	<i>Bulbophyllum polygaliflorum</i>
<i>Bulbophyllum oligochaete</i>	<i>Bulbophyllum polyphyllum</i>
<i>Bulbophyllum oncopus</i>	<i>Bulbophyllum polyrhizon</i>
<i>Bulbophyllum onivense</i>	<i>Bulbophyllum polyrhizum</i>
<i>Bulbophyllum orbiculare</i>	<i>Bulbophyllum posticum</i>
<i>Bulbophyllum oreocharis</i>	<i>Bulbophyllum potamiphilum</i>
<i>Bulbophyllum oreodorum</i>	<i>Bulbophyllum profusum</i>
<i>Bulbophyllum oreodoxa</i>	<i>Bulbophyllum prorepens</i>
<i>Bulbophyllum oreogenum</i>	<i>Bulbophyllum protectum</i>
<i>Bulbophyllum oreonastes</i>	<i>Bulbophyllum protractum</i>
<i>Bulbophyllum origami</i>	<i>Bulbophyllum ptilotes</i>
<i>Bulbophyllum ortalis</i>	<i>Bulbophyllum ptychostigma</i>
<i>Bulbophyllum osyricera</i>	<i>Bulbophyllum puguahaanense</i>
<i>Bulbophyllum otoglossum</i>	<i>Bulbophyllum pulvinatum</i>
<i>Bulbophyllum oxycalyx</i>	<i>Bulbophyllum pumilio</i>
<i>Bulbophyllum pan</i>	<i>Bulbophyllum punamense</i>
<i>Bulbophyllum pandurella</i>	<i>Bulbophyllum pungens</i>
<i>Bulbophyllum pantoblepharon</i>	<i>Bulbophyllum puntjakense</i>
<i>Bulbophyllum papangense</i>	<i>Bulbophyllum purpureum</i>
<i>Bulbophyllum papillatum</i>	<i>Bulbophyllum pusillum</i>
<i>Bulbophyllum papuliferum</i>	<i>Bulbophyllum pygmaeum</i>
<i>Bulbophyllum papulipetalum</i>	<i>Bulbophyllum pyridion</i>
<i>Bulbophyllum parabates</i>	<i>Bulbophyllum quadrangulare</i>
<i>Bulbophyllum paranaense</i>	<i>Bulbophyllum quadrialatum</i>
<i>Bulbophyllum parvum</i>	<i>Bulbophyllum quadrichaete</i>
<i>Bulbophyllum pauciflorum</i>	<i>Bulbophyllum quadrifarium</i>
<i>Bulbophyllum paululum</i>	<i>Bulbophyllum quasimodo</i>
<i>Bulbophyllum pectinatum</i>	<i>Bulbophyllum quinquelobum</i>
<i>Bulbophyllum pelicanopsis</i>	<i>Bulbophyllum ranomafanae</i>
<i>Bulbophyllum peperomiifolium</i>	<i>Bulbophyllum rarum</i>
<i>Bulbophyllum peramoenum</i>	<i>Bulbophyllum rauhii</i>

<i>Bulbophyllum reductum</i>	<i>Bulbophyllum scotiifolium</i>
<i>Bulbophyllum regnellii</i>	<i>Bulbophyllum scutiferum</i>
<i>Bulbophyllum remiferum</i>	<i>Bulbophyllum scyphochilus</i>
<i>Bulbophyllum renipetalum</i>	<i>Bulbophyllum secundum</i>
<i>Bulbophyllum repens</i>	<i>Bulbophyllum semiindutum</i>
<i>Bulbophyllum reptans</i>	<i>Bulbophyllum semiteres</i>
<i>Bulbophyllum restrepia</i>	<i>Bulbophyllum semiteretifolium</i>
<i>Bulbophyllum resupinatum</i>	<i>Bulbophyllum semperflorens</i>
<i>Bulbophyllum retrorsum</i>	<i>Bulbophyllum septatum</i>
<i>Bulbophyllum rhodoglossum</i>	<i>Bulbophyllum setigerum</i>
<i>Bulbophyllum rhodoneuron</i>	<i>Bulbophyllum shanicum</i>
<i>Bulbophyllum rhodophyllum</i>	<i>Bulbophyllum shweliense</i>
<i>Bulbophyllum rhodostachys</i>	<i>Bulbophyllum sikapingense</i>
<i>Bulbophyllum rhodostictum</i>	<i>Bulbophyllum simile</i>
<i>Bulbophyllum rhopaloblepharon</i>	<i>Bulbophyllum similissimum</i>
<i>Bulbophyllum rhopalophorum</i>	<i>Bulbophyllum simplicilabellum</i>
<i>Bulbophyllum rhynchoglossum</i>	<i>Bulbophyllum skeatianum</i>
<i>Bulbophyllum ricaldonei</i>	<i>Bulbophyllum smithianum</i>
<i>Bulbophyllum rictorium</i>	<i>Bulbophyllum speciosum</i>
<i>Bulbophyllum rienanense</i>	<i>Bulbophyllum sphaeracron</i>
<i>Bulbophyllum rivulare</i>	<i>Bulbophyllum sphaerobulbum</i>
<i>Bulbophyllum rolfei</i>	<i>Bulbophyllum spissum</i>
<i>Bulbophyllum romburghii</i>	<i>Bulbophyllum spodotriche</i>
<i>Bulbophyllum roraimense</i>	<i>Bulbophyllum stabile</i>
<i>Bulbophyllum roseopunctatum</i>	<i>Bulbophyllum staetophytum</i>
<i>Bulbophyllum roxburghii</i>	<i>Bulbophyllum stemonochilum</i>
<i>Bulbophyllum rubiferum</i>	<i>Bulbophyllum stenobulbon</i>
<i>Bulbophyllum rubiginosum</i>	<i>Bulbophyllum stenochilum</i>
<i>Bulbophyllum rubipetalum</i>	<i>Bulbophyllum stenomeris</i>
<i>Bulbophyllum rubrolabellum</i>	<i>Bulbophyllum stenophyllum</i>
<i>Bulbophyllum rubrolabium</i>	<i>Bulbophyllum sterile</i>
<i>Bulbophyllum rubrum</i>	<i>Bulbophyllum stictanthum</i>
<i>Bulbophyllum ruginosum</i>	<i>Bulbophyllum stipulaceum</i>
<i>Bulbophyllum rugosibulbum</i>	<i>Bulbophyllum stolzii</i>
<i>Bulbophyllum rutenbergianum</i>	<i>Bulbophyllum stormii</i>
<i>Bulbophyllum rutilans</i>	<i>Bulbophyllum striatellum</i>
<i>Bulbophyllum saccolabioides</i>	<i>Bulbophyllum striatum</i>
<i>Bulbophyllum salaccense</i>	<i>Bulbophyllum stylocoryphe</i>
<i>Bulbophyllum sambiranense</i>	<i>Bulbophyllum subapetalum</i>
<i>Bulbophyllum sanguineum</i>	<i>Bulbophyllum subapproximatum</i>
<i>Bulbophyllum sanitii</i>	<i>Bulbophyllum subligaculiferum</i>
<i>Bulbophyllum sannio</i>	<i>Bulbophyllum subtenellum</i>
<i>Bulbophyllum santoense</i>	<i>Bulbophyllum subtrilobatum</i>
<i>Bulbophyllum sapphirinum</i>	<i>Bulbophyllum subulifolium</i>
<i>Bulbophyllum sarcochilum</i>	<i>Bulbophyllum succedaneum</i>
<i>Bulbophyllum sarcodanthum</i>	<i>Bulbophyllum sulcatum</i>
<i>Bulbophyllum sarcophyllioides</i>	<i>Bulbophyllum superpositum</i>
<i>Bulbophyllum sarcorhachis</i>	<i>Bulbophyllum sutepense</i>
<i>Bulbophyllum scabrum</i>	<i>Bulbophyllum systemochilum</i>
<i>Bulbophyllum scariosum</i>	<i>Bulbophyllum tahanense</i>
<i>Bulbophyllum sceliphron</i>	<i>Bulbophyllum taiwanense</i>
<i>Bulbophyllum scheffleri</i>	<i>Bulbophyllum tampoketsense</i>
<i>Bulbophyllum sciaphile</i>	<i>Bulbophyllum tekuense</i>
<i>Bulbophyllum scopia</i>	<i>Bulbophyllum tenellum</i>
<i>Bulbophyllum scopula</i>	<i>Bulbophyllum tengchongense</i>

Bulbophyllum tentaculatum
Bulbophyllum tentaculiferum
Bulbophyllum tenue
Bulbophyllum tenuifolium
Bulbophyllum teretibulbum
Bulbophyllum theioglossum
Bulbophyllum thelantyx
Bulbophyllum therezienii
Bulbophyllum thersites
Bulbophyllum thiurum
Bulbophyllum thwaitesii
Bulbophyllum thymophorum
Bulbophyllum tigridum
Bulbophyllum titanea
Bulbophyllum tjadasmalangense
Bulbophyllum tokioi
Bulbophyllum torajarum
Bulbophyllum toranum
Bulbophyllum torricellense
Bulbophyllum tortuosum
Bulbophyllum trachybracteum
Bulbophyllum trachypus
Bulbophyllum tremulum
Bulbophyllum treschii
Bulbophyllum triandrum
Bulbophyllum triaristella
Bulbophyllum tricarinatum
Bulbophyllum trichaete
Bulbophyllum trichochlamys
Bulbophyllum trichorachis
Bulbophyllum trifarium
Bulbophyllum triflorum
Bulbophyllum trifolium
Bulbophyllum trilineatum
Bulbophyllum trimenii
Bulbophyllum triviale
Bulbophyllum truncatum
Bulbophyllum tseanum
Bulbophyllum tuberculatum
Bulbophyllum tubilabrum
Bulbophyllum tumidum
Bulbophyllum turgidum
Bulbophyllum turkii
Bulbophyllum ulcerosum
Bulbophyllum umbraticola
Bulbophyllum uncinatum
Bulbophyllum unguilabium
Bulbophyllum unicaudatum
Bulbophyllum unifoliatum
Bulbophyllum vaccinioides
Bulbophyllum valeryi
Bulbophyllum vanum
Bulbophyllum vareschii
Bulbophyllum vermiculare
Bulbophyllum verruculatum

Bulbophyllum vesiculosum
Bulbophyllum vexillarium
Bulbophyllum violaceum
Bulbophyllum viridiflorum
Bulbophyllum warianum
Bulbophyllum weberbauerianum
Bulbophyllum weddellii
Bulbophyllum williamsii
Bulbophyllum windsorensense
Bulbophyllum wolfei
Bulbophyllum wuzhishanense
Bulbophyllum xanthanthum
Bulbophyllum xanthomelanon
Bulbophyllum xanthophaeum
Bulbophyllum xanthotes
Bulbophyllum xylocarpi
Bulbophyllum xylophyllum
Bulbophyllum zamboangense
Bulbophyllum zebrinum
Bulbophyllum zygochilum
Caluera surinamensis
Caluera tavaresii
Calymmanthera montana
Camaridium strumatum
Camaridium vittariifolium
Campylocentrum brenesii
Campylocentrum grisebachii
Campylocentrum hirtzii
Campylocentrum minutum
Campylocentrum pachyrrhizum
Campylocentrum schiedeii
Campylocentrum schneeanum
Campylocentrum tenellum
Campylocentrum tyrridion
Capanemia adelaidae
Capanemia brachycion
Capanemia carinata
Capanemia gehrtii
Capanemia paranaensis
Capanemia thereziae
Cattleya alagoensis
Cattleya crispata
Cattleya kleberii
Cattleya pygmaea
Cattleya vandenberghii
Cattleya verboonenii
Cattleya (as Hoffmannseggella) viridiflora
Centroglossa castellensis
Centroglossa greeniana
Centroglossa nunes-limae
Centroglossa tripollinica
Chamaeanthus brachystachys
Chamaeanthus wenzelii
Chamelophyton kegelii
Chaseella pseudohydra

<i>Chelonistele kinabaluensis</i>	<i>Comparettia rubriflora</i>
<i>Chiloschista extintoriformis</i>	<i>Comparettia seegeri</i>
<i>Chiloschista fasciata</i>	<i>Comparettia sillarensis</i>
<i>Chiloschista glandulosa</i>	<i>Comparettia tuerckheimii</i>
<i>Chiloschista godefroyana</i>	<i>Comparettia vasquezii</i>
<i>Chiloschista guangdongensis</i>	<i>Comparettia williamsii</i>
<i>Chiloschista loheri</i>	<i>Constantia australis</i>
<i>Chiloschista phyllorhiza</i>	<i>Constantia cristinae</i>
<i>Chiloschista ramifera</i>	<i>Constantia gutfreundiana</i>
<i>Chiloschista rodriguezii</i>	<i>Constantia microscopica</i>
<i>Chiloschista segawae</i>	<i>Cryptarrhena guatemalensis</i>
<i>Chiloschista sweelimii</i>	<i>Cypholoron convexa</i>
<i>Chiloschista taeniophyllum</i>	<i>Cypholoron frigida</i>
<i>Chiloschista treubii</i>	<i>Cyrtorchis crassifolia</i>
<i>Chiloschista trudelii</i>	<i>Daiotyla maculata</i>
<i>Christensonella pacholskii</i>	<i>Dendrobium adamsii</i>
<i>Christensonella madida</i>	<i>Dendrobium anamalayanum</i>
<i>Christensonella seidelii</i>	<i>Dendrobium brevicaule</i>
<i>Christensonella subulata</i>	<i>Dendrobium cabadharensense</i>
<i>Chroniochilus ecalcaratus</i>	<i>Dendrobium carrii</i>
<i>Chroniochilus minimus</i>	<i>Dendrobium citrinum</i>
<i>Chroniochilus thrixspermoides</i>	<i>Dendrobium confinale</i>
<i>Chroniochilus virescens</i>	<i>Dendrobium constrictum</i>
<i>Chytroglossa paulensis</i>	<i>Dendrobium cuspidatum</i>
<i>Cischweinfia nana</i>	<i>Dendrobium darjeelingense</i>
<i>Coelogyne anceps</i>	<i>Dendrobium deltatum</i>
<i>Coelogyne odoratissima</i>	<i>Dendrobium diodon</i>
<i>Coelogyne trilobulata</i>	<i>Dendrobium dixonianum</i>
<i>Coelogyne triuncialis</i>	<i>Dendrobium doormanii</i>
<i>Coelogyne ustulata</i>	<i>Dendrobium erostelle</i>
<i>Collabium delavayi</i>	<i>Dendrobium eserre</i>
<i>Collabium evrardii</i>	<i>Dendrobium flexicaule</i>
<i>Collabium pumilum</i>	<i>Dendrobium gerlandianum</i>
<i>Comparettia barkeri</i>	<i>Dendrobium gaoligongense</i>
<i>Comparettia brevis</i>	<i>Dendrobium kanburiense</i>
<i>Comparettia campoverdi</i>	<i>Dendrobium lancilabium</i>
<i>Comparettia corydaloides</i>	<i>Dendrobium langbianense</i>
<i>Comparettia crucicornibus</i>	<i>Dendrobium laterale</i>
<i>Comparettia escobariana</i>	<i>Dendrobium margaretae</i>
<i>Comparettia gentryi</i>	<i>Dendrobium mariae</i>
<i>Comparettia granizoi</i>	<i>Dendrobium minutiflorum</i>
<i>Comparettia hauensteinii</i>	<i>Dendrobium miserum</i>
<i>Comparettia janeae</i>	<i>Dendrobium mucronatum</i>
<i>Comparettia kerspei</i>	<i>Dendrobium nanum</i>
<i>Comparettia langkastii</i>	<i>Dendrobium nardoides</i>
<i>Comparettia laeae</i>	<i>Dendrobium ngoyense</i>
<i>Comparettia limatamboensis</i>	<i>Dendrobium nubigenum</i>
<i>Comparettia markgrafii</i>	<i>Dendrobium nummularia</i>
<i>Comparettia minuta</i>	<i>Dendrobium oppositifolium</i>
<i>Comparettia mirthae</i>	<i>Dendrobium pachythrix</i>
<i>Comparettia oliverosii</i>	<i>Dendrobium panduratum</i>
<i>Comparettia paniculata</i>	<i>Dendrobium plebejum</i>
<i>Comparettia papillosa</i>	<i>Dendrobium procumbens</i>
<i>Comparettia peruviodes</i>	<i>Dendrobium prostratum</i>
<i>Comparettia romansii</i>	<i>Dendrobium proteranthum</i>



<i>Dendrobium pseudoaloifolium</i>	<i>Dendrobium (Diplocaulobium) masonii</i>
<i>Dendrobium pseudopeloricum</i>	<i>Dendrobium (Diplocaulobium) minjemense</i>
<i>Dendrobium pseudotenellum</i>	<i>Dendrobium (Diplocaulobium) noesae</i>
<i>Dendrobium puberulilingue</i>	<i>Dendrobium (Diplocaulobium) savannicola</i>
<i>Dendrobium puniceum</i>	<i>Dendrobium (Diplocaulobium) tropidophorum</i>
<i>Dendrobium rariflorum</i>	<i>Dendrobium (Epigeneium) acutilingue</i>
<i>Dendrobium remotisepalum</i>	<i>Dendrobium (Epigeneium) brevibulbum</i>
<i>Dendrobium sculptum</i>	<i>Dendrobium (Epigeneium) exiliifolium</i>
<i>Dendrobium simplex</i>	<i>Dendrobium (Epigeneium) gaoligongense</i>
<i>Dendrobium sinense</i>	<i>Dendrobium (Epigeneium) labuanum</i>
<i>Dendrobium subulatoides</i>	<i>Dendrobium (Epigeneium) longipes</i>
<i>Dendrobium trinervium</i>	<i>Dendrobium (Epigeneium) longirepens</i>
<i>Dendrobium tropidoneuron</i>	<i>Dendrobium (Epigeneium) mariae</i>
<i>Dendrobium trullatum</i>	<i>Dendrobium (Epigeneium) speculum</i>
<i>Dendrobium undatialatum</i>	<i>Dendrobium (Epigeneium) treutleri</i>
<i>Dendrobium usterioides</i>	<i>Dendrobium (Flickingeria) angustifolium</i>
<i>Dendrobium ustulatum</i>	<i>Dendrobium (Flickingeria) convexum</i>
<i>Dendrobium violaceominiatum</i>	<i>Dendrobium (Flickingeria) interjectum</i>
<i>Dendrobium wenzelii</i>	<i>Dendrobium (Flickingeria) omissum</i>
<i>Dendrobium mulderi</i>	<i>Dendrochilum angustilobum</i>
<i>Dendrobium praemorsum</i>	<i>Dendrochilum auriculilobum</i>
<i>Dendrobium reflexum</i>	<i>Dendrochilum basale</i>
<i>Dendrobium sinominutiflorum</i>	<i>Dendrochilum carinatum</i>
<i>Dendrobium (Cadetia) aprinum</i>	<i>Dendrochilum crassilabium</i>
<i>Dendrobium (Cadetia) bialatum</i>	<i>Dendrochilum croceum</i>
<i>Dendrobium (Cadetia) chamaephytum</i>	<i>Dendrochilum cupulatum</i>
<i>Dendrobium (Cadetia) citrinum</i>	<i>Dendrochilum dempoense</i>
<i>Dendrobium (Cadetia) collinsii</i>	<i>Dendrochilum devogelii</i>
<i>Dendrobium (Cadetia) crassulum</i>	<i>Dendrochilum dewildeorum</i>
<i>Dendrobium (Cadetia) echinocarpum</i>	<i>Dendrochilum dolichobrachium</i>
<i>Dendrobium (Cadetia) goliathense</i>	<i>Dendrochilum dulitense</i>
<i>Dendrobium (Cadetia) infortunatum</i>	<i>Dendrochilum exiguum</i>
<i>Dendrobium (Cadetia) karoense</i>	<i>Dendrochilum galbanum</i>
<i>Dendrobium (Cadetia) lagorum</i>	<i>Dendrochilum globigerum</i>
<i>Dendrobium (Cadetia) macrolobum</i>	<i>Dendrochilum gracile</i>
<i>Dendrobium (Cadetia) maidenianum</i>	<i>Dendrochilum hamatum</i>
<i>Dendrobium (Cadetia) maliliense</i>	<i>Dendrochilum haslamii</i>
<i>Dendrobium (Cadetia) maluense</i>	<i>Dendrochilum hastilobum</i>
<i>Dendrobium (Cadetia) microphyton</i>	<i>Dendrochilum integrilabium</i>
<i>Dendrobium (Cadetia) obreniforme</i>	<i>Dendrochilum jiewhoei</i>
<i>Dendrobium (Cadetia) pseudaprinum</i>	<i>Dendrochilum joclemensii</i>
<i>Dendrobium (Cadetia) rumphiae</i>	<i>Dendrochilum johannis-winkleri</i>
<i>Dendrobium (Cadetia) subretusum</i>	<i>Dendrochilum karoense</i>
<i>Dendrobium (Cadetia) transversilobum</i>	<i>Dendrochilum krauseanum</i>
<i>Dendrobium (Cadetia) vanuatuense</i>	<i>Dendrochilum leuserense</i>
<i>Dendrobium (Cadetia) versteegii</i>	<i>Dendrochilum lewisii</i>
<i>Dendrobium (Diplocaulobium) abbreviatum</i>	<i>Dendrochilum linearifolium</i>
<i>Dendrobium (Diplocaulobium) cyclobulbon</i>	<i>Dendrochilum longibulbum</i>
<i>Dendrobium (Diplocaulobium) dichrotropis</i>	<i>Dendrochilum magaense</i>
<i>Dendrobium (Diplocaulobium) glabrum</i>	<i>Dendrochilum merapiense</i>
<i>Dendrobium (Diplocaulobium) gracilentum</i>	<i>Dendrochilum micholitzianum</i>
<i>Dendrobium (Diplocaulobium) jadunae</i>	<i>Dendrochilum microchilum</i>
<i>Dendrobium (Diplocaulobium) kirchianum</i>	<i>Dendrochilum microscopicum</i>

Figure 5.3 (facing page) The unusual and proportionately very large flowers of *Dendrobium parvulum* are wonderfully coloured (Grower: Cindy Hill).

Bulbophyllum labatii
Bulbophyllum lacinulosum
Bulbophyllum lagaroglossum
Bulbophyllum lageniforme
Bulbophyllum lakatoense
Bulbophyllum lambii
Bulbophyllum lasioglossum
Bulbophyllum latipes
Bulbophyllum latipetalum
Bulbophyllum latisepalum
Bulbophyllum leandrianum
Bulbophyllum lecoufleii
Bulbophyllum ledungense
Bulbophyllum lehmannianum
Bulbophyllum lemnifolium
Bulbophyllum lemniscatum
Bulbophyllum lemuraeoides
Bulbophyllum leniae
Bulbophyllum leontoglossum
Bulbophyllum lepantense
Bulbophyllum leproglossum
Bulbophyllum leptanthum
Bulbophyllum leptocaulon
Bulbophyllum leptochlamys
Bulbophyllum leptoglossum
Bulbophyllum leptoleucum
Bulbophyllum leptopus
Bulbophyllum leptostachyanum
Bulbophyllum leve
Bulbophyllum levinei
Bulbophyllum lewisense
Bulbophyllum lichenoides
Bulbophyllum lichenophylax
Bulbophyllum lilianae
Bulbophyllum lineatum
Bulbophyllum lingulatum
Bulbophyllum liparidioides
Bulbophyllum lohokii
Bulbophyllum lokonense
Bulbophyllum longhutense
Bulbophyllum longirostre
Bulbophyllum lophoglottis
Bulbophyllum lophoton
Bulbophyllum loroglossum
Bulbophyllum loxophyllum
Bulbophyllum lucidum
Bulbophyllum luederwaldtii
Bulbophyllum luteobracteatum
Bulbophyllum luteopurpureum
Bulbophyllum luteum
Bulbophyllum lyperocephalum
Bulbophyllum maboroense
Bulbophyllum maijenense
Bulbophyllum major
Bulbophyllum malleolabrum

Bulbophyllum manarae
Bulbophyllum mangelotii
Bulbophyllum marginatum
Bulbophyllum marojejiense
Bulbophyllum masarangicum
Bulbophyllum masonii
Bulbophyllum maudeae
Bulbophyllum melanoglossum
Bulbophyllum melinoglossum
Bulbophyllum melleum
Bulbophyllum membranaceum
Bulbophyllum menghaiense
Bulbophyllum meristorhachis
Bulbophyllum metonymon
Bulbophyllum micholitzianum
Bulbophyllum microblepharon
Bulbophyllum microbulbon
Bulbophyllum microdendron
Bulbophyllum microglossum
Bulbophyllum microrhombos
Bulbophyllum microsphaerum
Bulbophyllum microtes
Bulbophyllum mimiense
Bulbophyllum minax
Bulbophyllum mindorensense
Bulbophyllum minutipetalum
Bulbophyllum minutulum
Bulbophyllum minutum
Bulbophyllum mirandaianum
Bulbophyllum moldenkeanum
Bulbophyllum molossus
Bulbophyllum monanthos
Bulbophyllum monosema
Bulbophyllum montanum
Bulbophyllum montense
Bulbophyllum morenoi
Bulbophyllum mucronatum
Bulbophyllum multiflorum
Bulbophyllum multivaginatatum
Bulbophyllum muricatum
Bulbophyllum muscicola
Bulbophyllum mutabile
Bulbophyllum mutatum
Bulbophyllum myolaense
Bulbophyllum myrtillus
Bulbophyllum mysorensense
Bulbophyllum mystrochilum
Bulbophyllum nabawanense
Bulbophyllum nannodes
Bulbophyllum nanopetalum
Bulbophyllum napellii
Bulbophyllum nasica
Bulbophyllum navicula
Bulbophyllum nebulareum
Bulbophyllum neglectum

<i>Dendrochilum minimiflorum</i>	<i>Diodonopsis pygmaea</i>
<i>Dendrochilum murudense</i>	<i>Dresslerella archilae</i>
<i>Dendrochilum ochrolabium</i>	<i>Dresslerella caesariata</i>
<i>Dendrochilum pachyphyllum</i>	<i>Dresslerella cloesii</i>
<i>Dendrochilum pandurichilum</i>	<i>Dresslerella pertusa</i>
<i>Dendrochilum pholidotoides</i>	<i>Dresslerella powellii</i>
<i>Dendrochilum pseudoscriptum</i>	<i>Dresslerella sijmiana</i>
<i>Dendrochilum pulogense</i>	<i>Dryadella ana-paulae</i>
<i>Dendrochilum quadrilobum</i>	<i>Dryadella auriculigera</i>
<i>Dendrochilum quinquangulare</i>	<i>Dryadella aviceps</i>
<i>Dendrochilum quinquecallosum</i>	<i>Dryadella barrowii</i>
<i>Dendrochilum rhombeum</i>	<i>Dryadella butcheri</i>
<i>Dendrochilum subulibrachium</i>	<i>Dryadella clavellata</i>
<i>Dendrochilum suratii</i>	<i>Dryadella crassicaudata</i>
<i>Dendrochilum taeniophyllum</i>	<i>Dryadella crenulata</i>
<i>Dendrochilum tenempokense</i>	<i>Dryadella cuspidata</i>
<i>Dendrochilum tenuibulbum</i>	<i>Dryadella cuspidata</i>
<i>Dendrochilum truncatum</i>	<i>Dryadella dodsonii</i>
<i>Dendrochilum undulatum</i>	<i>Dryadella dressleri</i>
<i>Dendrochilum vanoverberghii</i>	<i>Dryadella elata</i>
<i>Dendrochilum vestitum</i>	<i>Dryadella espirito-santensis</i>
<i>Dendrochilum woodianum</i>	<i>Dryadella fuchsii</i>
<i>Dendrophylax porrectus</i>	<i>Dryadella gnoma</i>
<i>Dichaea acroblephera</i>	<i>Dryadella gomes-ferreirae</i>
<i>Dichaea acuminata</i>	<i>Dryadella greenwoodiana</i>
<i>Dichaea alcantarae</i>	<i>Dryadella guatemalensis</i>
<i>Dichaea benzingii</i>	<i>Dryadella hirtzii</i>
<i>Dichaea boliviana</i>	<i>Dryadella kautskyi</i>
<i>Dichaea brevicaulis</i>	<i>Dryadella linearifolia</i>
<i>Dichaea camaridioides</i>	<i>Dryadella littoralis</i>
<i>Dichaea ciliolata</i>	<i>Dryadella lueriana</i>
<i>Dichaea delcastilloi</i>	<i>Dryadella marilyniana</i>
<i>Dichaea ecuadorensis</i>	<i>Dryadella marsupiata</i>
<i>Dichaea escobariana</i>	<i>Dryadella meiracyllium</i>
<i>Dichaea galeata</i>	<i>Dryadella miniuscula</i>
<i>Dichaea gorgonensis</i>	<i>Dryadella mocoana</i>
<i>Dichaea hollinensis</i>	<i>Dryadella nasuta</i>
<i>Dichaea hookeri</i>	<i>Dryadella nortonii</i>
<i>Dichaea humilus</i>	<i>Dryadella odontostele</i>
<i>Dichaea hystricina</i>	<i>Dryadella osmariniana</i>
<i>Dichaea lagotis</i>	<i>Dryadella pachyrhiza</i>
<i>Dichaea lankesteri</i>	<i>Dryadella pusiola</i>
<i>Dichaea latifolia</i>	<i>Dryadella rodrigoii</i>
<i>Dichaea luerorum</i>	<i>Dryadella simula</i>
<i>Dichaea neglecta</i>	<i>Dryadella sororcula</i>
<i>Dichaea panamensis</i>	<i>Dryadella sublata</i>
<i>Dichaea pumila</i>	<i>Dryadella summersii</i>
<i>Dichaea richii</i>	<i>Dryadella susanae</i>
<i>Dichaea tamboensis</i>	<i>Dryadella toscanoi</i>
<i>Dichaea tenuis</i>	<i>Dryadella vasquezii</i>
<i>Dichaea venezuelensis</i>	<i>Dryadella verrucosa</i>
<i>Dichaea weigeltii</i>	<i>Dryadella vitorinoi</i>
<i>Diodonopsis anachaeta</i>	<i>Dryadella wernerii</i>
<i>Diodonopsis hoeijeri</i>	<i>Dryadella wuerstlei</i>
<i>Diodonopsis pterygiophora</i>	<i>Dryadella zebrina</i>

<i>Drymoanthus adversus</i>	<i>Epidendrum oellgaardii</i>
<i>Drymoanthus flavus</i>	<i>Epidendrum oldemanii</i>
<i>Drymoanthus minimus</i>	<i>Epidendrum orientale</i>
<i>Drymoanthus minutus</i>	<i>Epidendrum oxypampense</i>
<i>Eloyella antioquiensis</i>	<i>Epidendrum oxynanodes</i>
<i>Eloyella bifida</i>	<i>Epidendrum plagiophyllum</i>
<i>Eloyella cundinamarcae</i>	<i>Epidendrum prostratum</i>
<i>Eloyella dalstroemii</i>	<i>Epidendrum serruliferum</i>
<i>Eloyella jostii</i>	<i>Epidendrum scharfii</i>
<i>Eloyella mendietae</i>	<i>Epidendrum schizoclinandrium</i>
<i>Eloyella panamensis</i>	<i>Epidendrum schlimii</i>
<i>Eloyella theinii</i>	<i>Epidendrum selaginella</i>
<i>Eloyella thivii</i>	<i>Epidendrum semiteretifolium</i>
<i>Eloyella wernerii</i>	<i>Epidendrum serpens</i>
<i>Epidendrum addae</i>	<i>Epidendrum siphonosepalum</i>
<i>Epidendrum althausenii</i>	<i>Epidendrum sophronitoides</i>
<i>Epidendrum angustisegmentum</i>	<i>Epidendrum strobiloides</i>
<i>Epidendrum attenuatum</i>	<i>Epidendrum thelephorum</i>
<i>Epidendrum atwoodchlamys</i>	<i>Epidendrum tortipetalum</i>
<i>Epidendrum bakrense</i>	<i>Epidendrum uleinanodes</i>
<i>Epidendrum barbeyanum</i>	<i>Epidendrum unifoliatum</i>
<i>Epidendrum berkeleyi</i>	<i>Epidendrum Vargasii</i>
<i>Epidendrum carmelense</i>	<i>Epidendrum viridibrunneum</i>
<i>Epidendrum chanchamayodiforme</i>	<i>Erycina crista-galli</i>
<i>Epidendrum chauvetii</i>	<i>Erycina pumilio</i>
<i>Epidendrum congestum</i>	<i>Erycina zamorensis</i>
<i>Epidendrum congestoides</i>	<i>Eulophia arenicola</i>
<i>Epidendrum croatii</i>	<i>Eulophia penduliflora</i>
<i>Epidendrum deltoglossum</i>	<i>Fernandezia aurorae</i>
<i>Epidendrum farinosum</i>	<i>Fernandezia bryophyta</i>
<i>Epidendrum filicaule</i>	<i>Fernandezia bucarasicae</i>
<i>Epidendrum gonzalez-tamayoi</i>	<i>Fernandezia costaricensis</i>
<i>Epidendrum gnomus</i>	<i>Fernandezia cyrtophylla</i>
<i>Epidendrum gregorii</i>	<i>Fernandezia distichoides</i>
<i>Epidendrum hammelii</i>	<i>Fernandezia ecallosa</i>
<i>Epidendrum harmsianum</i>	<i>Fernandezia ecuadorensis</i>
<i>Epidendrum ilinizae</i>	<i>Fernandezia hartwegii</i>
<i>Epidendrum johnstonii</i>	<i>Fernandezia hispidula</i>
<i>Epidendrum kockii</i>	<i>Fernandezia hispidula</i>
<i>Epidendrum laceratum</i>	<i>Fernandezia maculata</i>
<i>Epidendrum llactapataensis</i>	<i>Fernandezia mexicana</i>
<i>Epidendrum longirepens</i>	<i>Fernandezia micrangis</i>
<i>Epidendrum lueri</i>	<i>Fernandezia micrantha</i>
<i>Epidendrum lumbaquiense</i>	<i>Fernandezia minus</i>
<i>Epidendrum manarae</i>	<i>Fernandezia myrtilus</i>
<i>Epidendrum mathewsii</i>	<i>Fernandezia nigrosignata</i>
<i>Epidendrum microcattleya</i>	<i>Fernandezia nubivaga</i>
<i>Epidendrum microcharis</i>	<i>Fernandezia pectinata</i>
<i>Epidendrum micronocturnum</i>	<i>Fernandezia sanguinea</i>
<i>Epidendrum microphyllum</i>	<i>Fernandezia serra</i>
<i>Epidendrum miserrimum</i>	<i>Fernandezia stuebelii</i>
<i>Epidendrum moronense</i>	<i>Fernandezia tajacayaensis</i>
<i>Epidendrum nanosimplex</i>	<i>Fernandezia tenuis</i>
<i>Epidendrum neodiscolor</i>	<i>Fernandezia tica</i>
<i>Epidendrum nigricans</i>	<i>Fernandezia tortuosa</i>

<i>Fernandezia vaginata</i>	<i>Jacquiniella globosa</i>
<i>Gastrochilus alatus</i>	<i>Jacquiniella steyermarkii</i>
<i>Gastrochilus ciliaris</i>	<i>Jejewoodia jiewhoei</i>
<i>Gastrochilus corymbosus</i>	<i>Jumellea divaricata</i>
<i>Gastrochilus distichus</i>	<i>Jumellea hyalina</i>
<i>Gastrochilus fargesii</i>	<i>Jumellea jumelleana</i>
<i>Gastrochilus gongshanensis</i>	<i>Jumellea linearipetala</i>
<i>Gastrochilus hoi</i>	<i>Kefersteinia alba</i>
<i>Gastrochilus linii</i>	<i>Kefersteinia auriculata</i>
<i>Gastrochilus matsudae</i>	<i>Kefersteinia bengasahra</i>
<i>Gastrochilus matsuran</i>	<i>Kefersteinia benvenathar</i>
<i>Gastrochilus nanchuanensis</i>	<i>Kefersteinia chocoensis</i>
<i>Gastrochilus nanus</i>	<i>Kefersteinia costaricensis</i>
<i>Gastrochilus platycalcaratus</i>	<i>Kefersteinia delcastilloi</i>
<i>Gastrochilus rantabunensis</i>	<i>Kefersteinia endresii</i>
<i>Gastrochilus raraensis</i>	<i>Kefersteinia escalarensis</i>
<i>Gastrochilus saccatus</i>	<i>Kefersteinia escobariana</i>
<i>Gastrochilus xuanenensis</i>	<i>Kefersteinia guacamayoana</i>
<i>Genyorchis apetala</i>	<i>Kefersteinia heideri</i>
<i>Gomesa albinoi</i>	<i>Kefersteinia hirtzii</i>
<i>Gomesa brieniana</i>	<i>Kefersteinia lafontainei</i>
<i>Gomesa cogniauxiana</i>	<i>Kefersteinia licethyae</i>
<i>Gomesa discifera</i>	<i>Kefersteinia maculosa</i>
<i>Gomesa edmundoi</i>	<i>Kefersteinia minutiflora</i>
<i>Gomesa emilii</i>	<i>Kefersteinia orbicularis</i>
<i>Gomesa handroi</i>	<i>Kefersteinia oscarii</i>
<i>Gomesa herzogii</i>	<i>Kefersteinia pellita</i>
<i>Gomesa isoptera</i>	<i>Kefersteinia pusilla</i>
<i>Gomesa jucunda</i>	<i>Kefersteinia richardhegerlii</i>
<i>Gomesa paranensoides</i>	<i>Kefersteinia tinschertiana</i>
<i>Grandiphyllum micranthum</i>	<i>Kefersteinia vasquezii</i>
<i>Grandiphyllum schunkeanum</i>	<i>Kefersteinia villenae</i>
<i>Grouseourdyia muscosa</i>	<i>Kefersteinia wercklei</i>
<i>Grouseourdyia pulvinifera</i>	<i>Kraenzlinella echinocarpa</i>
<i>Grouseourdyia tripercus</i>	<i>Kraenzlinella hintonii</i>
<i>Gunnerella gracilis</i>	<i>Kraenzlinella lappago</i>
<i>Hoehneella heloisae</i>	<i>Kraenzlinella sigmoidea</i>
<i>Homalopetalum alticola</i>	<i>Lemurella papillosa</i>
<i>Homalopetalum hypoleptum</i>	<i>Leochilus hagsateri</i>
<i>Homalopetalum leochilus</i>	<i>Leochilus inconspicuus</i>
<i>Homalopetalum pumilum</i>	<i>Leochilus johnstonii</i>
<i>Homalopetalum vomeriforme</i>	<i>Leochilus leochilinus</i>
<i>Hylaeorchis petiolaris</i>	<i>Leochilus puertoricensis</i>
<i>Hymenorchis foliosa</i>	<i>Leochilus scriptus</i>
<i>Hymenorchis kaniensis</i>	<i>Leochilus tricuspidatus</i>
<i>Hymenorchis nannodes</i>	<i>Lepanthes abitaguae</i>
<i>Hymenorchis saccata</i>	<i>Lepanthes abortiva</i>
<i>Hymenorchis serrata</i>	<i>Lepanthes absens</i>
<i>Hymenorchis serrulata</i>	<i>Lepanthes acarina</i>
<i>Ionopsis burchellii</i>	<i>Lepanthes aciculifolia</i>
<i>Ionopsis minutiflora</i>	<i>Lepanthes acrogenia</i>
<i>Ionopsis papillosa</i>	<i>Lepanthes aeora</i>
<i>Ionopsis zebrina</i>	<i>Lepanthes aggeris</i>
<i>Ischnogyne mandarinorum</i>	<i>Lepanthes aguirrei</i>
<i>Ischilus pitalensis</i>	<i>Lepanthes alccicornis</i>

<i>Lepanthes alkaia</i>	<i>Lepanthes calopetala</i>
<i>Lepanthes allector</i>	<i>Lepanthes calypso</i>
<i>Lepanthes almolongae</i>	<i>Lepanthes campodostele</i>
<i>Lepanthes alticola</i>	<i>Lepanthes camptica</i>
<i>Lepanthes amphioxia</i>	<i>Lepanthes canaliculata</i>
<i>Lepanthes amplior</i>	<i>Lepanthes candida</i>
<i>Lepanthes anchorifera</i>	<i>Lepanthes capitanea</i>
<i>Lepanthes ancylopetala</i>	<i>Lepanthes carunculigera</i>
<i>Lepanthes andreectae</i>	<i>Lepanthes cassidea</i>
<i>Lepanthes andrenoglossa</i>	<i>Lepanthes catlingii</i>
<i>Lepanthes angulata</i>	<i>Lepanthes cauda-avis</i>
<i>Lepanthes anserina</i>	<i>Lepanthes caudata</i>
<i>Lepanthes antennata</i>	<i>Lepanthes caudigera</i>
<i>Lepanthes antennifera</i>	<i>Lepanthes celox</i>
<i>Lepanthes antiopa</i>	<i>Lepanthes cercion</i>
<i>Lepanthes aperta</i>	<i>Lepanthes chapina</i>
<i>Lepanthes appendiculata</i>	<i>Lepanthes chelonion</i>
<i>Lepanthes aprina</i>	<i>Lepanthes Chiangii</i>
<i>Lepanthes aquila-borussiae</i>	<i>Lepanthes chiriquensis</i>
<i>Lepanthes argentata</i>	<i>Lepanthes chocoensis</i>
<i>Lepanthes asoma</i>	<i>Lepanthes chorista</i>
<i>Lepanthes atomifera</i>	<i>Lepanthes ciliocampa</i>
<i>Lepanthes attenuata</i>	<i>Lepanthes ciliolata</i>
<i>Lepanthes atwoodii</i>	<i>Lepanthes circularis</i>
<i>Lepanthes aubryi</i>	<i>Lepanthes clandestina</i>
<i>Lepanthes auditor</i>	<i>Lepanthes clarkii</i>
<i>Lepanthes aures-asini</i>	<i>Lepanthes clausa</i>
<i>Lepanthes aurita</i>	<i>Lepanthes cochlearifolia</i>
<i>Lepanthes aurorae</i>	<i>Lepanthes cochliops</i>
<i>Lepanthes avicularia</i>	<i>Lepanthes cogolloi</i>
<i>Lepanthes avis</i>	<i>Lepanthes collaris</i>
<i>Lepanthes barbae</i>	<i>Lepanthes columbar</i>
<i>Lepanthes barbatula</i>	<i>Lepanthes comadresina</i>
<i>Lepanthes barbigera</i>	<i>Lepanthes comet-halleyi</i>
<i>Lepanthes beatrizae</i>	<i>Lepanthes complicata</i>
<i>Lepanthes benzingii</i>	<i>Lepanthes conchilabia</i>
<i>Lepanthes hibarbullata</i>	<i>Lepanthes conchyliata</i>
<i>Lepanthes bifalcis</i>	<i>Lepanthes confusa</i>
<i>Lepanthes bifida</i>	<i>Lepanthes confusoides</i>
<i>Lepanthes binnatula</i>	<i>Lepanthes convexa</i>
<i>Lepanthes blepharantha</i>	<i>Lepanthes cordata</i>
<i>Lepanthes blepharistes</i>	<i>Lepanthes cordeliae</i>
<i>Lepanthes boyacensis</i>	<i>Lepanthes corkyae</i>
<i>Lepanthes brachystele</i>	<i>Lepanthes costaricensis</i>
<i>Lepanthes branchifera</i>	<i>Lepanthes crista-pisces</i>
<i>Lepanthes breedlovei</i>	<i>Lepanthes crista-pulli</i>
<i>Lepanthes brenneri</i>	<i>Lepanthes crossota</i>
<i>Lepanthes brevipedicellata</i>	<i>Lepanthes cryptostele</i>
<i>Lepanthes brevipedicellatus</i>	<i>Lepanthes ctenophora</i>
<i>Lepanthes brevis</i>	<i>Lepanthes cucullata</i>
<i>Lepanthes byfieldii</i>	<i>Lepanthes culex</i>
<i>Lepanthes cacique-tone</i>	<i>Lepanthes cuneiformis</i>
<i>Lepanthes calimae</i>	<i>Lepanthes cuspidata</i>

Figure 5.4 (facing page) *Cattleya sincorana* f. *coerulea* has extraordinary, bluish-purple flowers of excellent size (Grower: Harry Phillips).



Lepanthes cyanoptera
Lepanthes cyclochila
Lepanthes cymbium
Lepanthes cyrillicola
Lepanthes dactylina
Lepanthes dasyura
Lepanthes davidsei
Lepanthes debedoutii
Lepanthes debilis
Lepanthes decipiens
Lepanthes decoris
Lepanthes deformis
Lepanthes deliqua
Lepanthes denticulata
Lepanthes dewildei
Lepanthes diaziae
Lepanthes dichroma
Lepanthes dictydion
Lepanthes dicycla
Lepanthes didactyla
Lepanthes didyma
Lepanthes discolor
Lepanthes disjuncta
Lepanthes disticha
Lepanthes divaricata
Lepanthes dodiana
Lepanthes dolabriformis
Lepanthes dolobrata
Lepanthes dotae
Lepanthes droseroides
Lepanthes dryades
Lepanthes duidensis
Lepanthes dumbo
Lepanthes dussii
Lepanthes echidion
Lepanthes echidna
Lepanthes echo
Lepanthes ectopa
Lepanthes edentula
Lepanthes edwardsii
Lepanthes effusa
Lepanthes ekmanii
Lepanthes elaeagnorae
Lepanthes elaminata
Lepanthes elliptica
Lepanthes eltoroensis
Lepanthes embreei
Lepanthes empticia
Lepanthes enca-barcelona
Lepanthes equicalceolata
Lepanthes ericae
Lepanthes eros
Lepanthes erythrocles
Lepanthes erythroxantha
Lepanthes escifera

Lepanthes esmeralda
Lepanthes eucerca
Lepanthes eumeces
Lepanthes evansiae
Lepanthes exaltata
Lepanthes excedens
Lepanthes eximia
Lepanthes exogena
Lepanthes expansa
Lepanthes exposita
Lepanthes exserta
Lepanthes falcata
Lepanthes falcifera
Lepanthes fascinata
Lepanthes ferax
Lepanthes fibulifera
Lepanthes filamentosa
Lepanthes flaccida
Lepanthes flexuosa
Lepanthes floresii
Lepanthes fonnegrae
Lepanthes forceps
Lepanthes forcipifera
Lepanthes foreroi
Lepanthes fractiflexa
Lepanthes fratercula
Lepanthes fuchsii
Lepanthes fugiens
Lepanthes fulva
Lepanthes fusiformis
Lepanthes gabriellae
Lepanthes gaileana
Lepanthes garayi
Lepanthes gemmula
Lepanthes generi
Lepanthes geniculata
Lepanthes georgii
Lepanthes glabella
Lepanthes glaberrima
Lepanthes glicensteinii
Lepanthes gloris
Lepanthes glossites
Lepanthes gnoma
Lepanthes golbasta
Lepanthes golondrina
Lepanthes gossamera
Lepanthes gracillima
Lepanthes greenwoodii
Lepanthes grildrig
Lepanthes grisebachiana
Lepanthes grossiradix
Lepanthes guanacastensis
Lepanthes guerrerensis
Lepanthes gustavoi
Lepanthes habenifera

Lepanthes hagsateri
Lepanthes hamiltonii
Lepanthes hamulifera
Lepanthes helcium
Lepanthes helgae
Lepanthes helicocephala
Lepanthes heptapus
Lepanthes herrerae
Lepanthes herzogii
Lepanthes heteroloba
Lepanthes hexapus
Lepanthes hirpex
Lepanthes hirsutula
Lepanthes hispidosa
Lepanthes hollymountensis
Lepanthes homotaxis
Lepanthes hubeinii
Lepanthes hurgo
Lepanthes hydrae
Lepanthes hyphosa
Lepanthes ibanezii
Lepanthes ictalurus
Lepanthes ilensis
Lepanthes implexa
Lepanthes imposita
Lepanthes impotens
Lepanthes inaequalis
Lepanthes incantata
Lepanthes incredibilis
Lepanthes inescata
Lepanthes ingramii
Lepanthes insolita
Lepanthes interiorubra
Lepanthes intermedia
Lepanthes intonsa
Lepanthes intricata
Lepanthes ionoptera
Lepanthes iricolor
Lepanthes isochila
Lepanthes isosceles
Lepanthes janus
Lepanthes jennyi
Lepanthes jesupii
Lepanthes jimburae
Lepanthes johnsonii
Lepanthes jubata
Lepanthes jugum
Lepanthes koehleri
Lepanthes labiata
Lepanthes laevis
Lepanthes larvina
Lepanthes lasiopetala
Lepanthes laxa
Lepanthes lenticularis
Lepanthes ligulata

Lepanthes lilliputae
Lepanthes limbata
Lepanthes limbellata
Lepanthes linealis
Lepanthes linguifera
Lepanthes lingulosa
Lepanthes llamachoi
Lepanthes llipiensis
Lepanthes loddigesiana
Lepanthes longipedicillata
Lepanthes longiracemosa
Lepanthes lophius
Lepanthes lycocephala
Lepanthes maccombiana
Lepanthes machorroii
Lepanthes macrostylis
Lepanthes mairae
Lepanthes mariae
Lepanthes marshana
Lepanthes marthae
Lepanthes martinezii
Lepanthes matisii
Lepanthes matudana
Lepanthes maxillaris
Lepanthes maxima
Lepanthes mefueensis
Lepanthes megalcephala
Lepanthes megalosteles
Lepanthes meganthera
Lepanthes melanocaulon
Lepanthes melpomene
Lepanthes mendozae
Lepanthes mentosa
Lepanthes mephistopheles
Lepanthes micellilabia
Lepanthes microrynx
Lepanthes microphallica
Lepanthes microscopica
Lepanthes mimetica
Lepanthes minima
Lepanthes minima-mundana
Lepanthes minutissima
Lepanthes mirabilis
Lepanthes miraculum
Lepanthes mittelstaedtii
Lepanthes mixe
Lepanthes monitor
Lepanthes mononeura
Lepanthes monteverdensis
Lepanthes motozintlensis
Lepanthes mulderae
Lepanthes multiflora
Lepanthes myiophora
Lepanthes nagelii
Lepanthes nana

<i>Lepanthes nebulina</i>	<i>Lepanthes portillae</i>
<i>Lepanthes necopina</i>	<i>Lepanthes privigna</i>
<i>Lepanthes nematodes</i>	<i>Lepanthes proboscidis</i>
<i>Lepanthes nematostele</i>	<i>Lepanthes proctorii</i>
<i>Lepanthes niesseniae</i>	<i>Lepanthes protuberans</i>
<i>Lepanthes niphias</i>	<i>Lepanthes psomion</i>
<i>Lepanthes noelii</i>	<i>Lepanthes pterygion</i>
<i>Lepanthes nontecta</i>	<i>Lepanthes pyxis</i>
<i>Lepanthes norae</i>	<i>Lepanthes pubicaulis</i>
<i>Lepanthes nulla</i>	<i>Lepanthes puck</i>
<i>Lepanthes oaxacana</i>	<i>Lepanthes pulchella</i>
<i>Lepanthes obliquiloba</i>	<i>Lepanthes pumila</i>
<i>Lepanthes obtusipetala</i>	<i>Lepanthes purpurea</i>
<i>Lepanthes occidentalis</i>	<i>Lepanthes pycnogenia</i>
<i>Lepanthes octavioi</i>	<i>Lepanthes pygmaea</i>
<i>Lepanthes octopus</i>	<i>Lepanthes pyramidalis</i>
<i>Lepanthes odontolabis</i>	<i>Lepanthes quadrata</i>
<i>Lepanthes omnifera</i>	<i>Lepanthes quandi</i>
<i>Lepanthes opetidion</i>	<i>Lepanthes quetzalensis</i>
<i>Lepanthes orbella</i>	<i>Lepanthes rabei</i>
<i>Lepanthes orchestris</i>	<i>Lepanthes ramosii</i>
<i>Lepanthes ordonezii</i>	<i>Lepanthes reflexa</i>
<i>Lepanthes ortegae</i>	<i>Lepanthes refracta</i>
<i>Lepanthes otara</i>	<i>Lepanthes regularis</i>
<i>Lepanthes otopetala</i>	<i>Lepanthes rekoii</i>
<i>Lepanthes ova-rajae</i>	<i>Lepanthes renzii</i>
<i>Lepanthes oxapampaensis</i>	<i>Lepanthes reticulata</i>
<i>Lepanthes oxybaphon</i>	<i>Lepanthes retusa</i>
<i>Lepanthes pachyphylla</i>	<i>Lepanthes ricourtensis</i>
<i>Lepanthes paivaana</i>	<i>Lepanthes rigidigitata</i>
<i>Lepanthes palpebralis</i>	<i>Lepanthes ringens</i>
<i>Lepanthes panisca</i>	<i>Lepanthes roezliana</i>
<i>Lepanthes pantomima</i>	<i>Lepanthes rotundata</i>
<i>Lepanthes papilio</i>	<i>Lepanthes rotundifolia</i>
<i>Lepanthes papilionacea</i>	<i>Lepanthes rudicula</i>
<i>Lepanthes papillipetala</i>	<i>Lepanthes rupicola</i>
<i>Lepanthes papyrophylla</i>	<i>Lepanthes ruscifolia</i>
<i>Lepanthes paradoxa</i>	<i>Lepanthes rutkisii</i>
<i>Lepanthes pariaensis</i>	<i>Lepanthes saccata</i>
<i>Lepanthes parvula</i>	<i>Lepanthes samacensis</i>
<i>Lepanthes penicillifera</i>	<i>Lepanthes sanguinea</i>
<i>Lepanthes perdita</i>	<i>Lepanthes sannio</i>
<i>Lepanthes petalolenta</i>	<i>Lepanthes satyrica</i>
<i>Lepanthes petalopteryx</i>	<i>Lepanthes scalaris</i>
<i>Lepanthes phalloides</i>	<i>Lepanthes scapha</i>
<i>Lepanthes phrixothrix</i>	<i>Lepanthes schiedei</i>
<i>Lepanthes pictoris</i>	<i>Lepanthes schizix</i>
<i>Lepanthes pileata</i>	<i>Lepanthes schizura</i>
<i>Lepanthes pilosa</i>	<i>Lepanthes schultesii</i>
<i>Lepanthes pinnatula</i>	<i>Lepanthes scopulifera</i>
<i>Lepanthes plectilis</i>	<i>Lepanthes scrotifera</i>
<i>Lepanthes pleurorachis</i>	<i>Lepanthes selenitepala</i>
<i>Lepanthes pleurothallopsis</i>	<i>Lepanthes selliana</i>
<i>Lepanthes pollardii</i>	<i>Lepanthes sericinitens</i>
<i>Lepanthes popoanensis</i>	<i>Lepanthes series</i>

Lepanthes serriola
Lepanthes sigsigensis
Lepanthes silenus
Lepanthes sillarensis
Lepanthes silvae
Lepanthes silverstonei
Lepanthes simplex
Lepanthes sinuosa
Lepanthes skeleton
Lepanthes smaragdina
Lepanthes solicator
Lepanthes sororcula
Lepanthes sousae
Lepanthes splendida
Lepanthes staatsiana
Lepanthes stegastes
Lepanthes stelidilabia
Lepanthes stelidipetala
Lepanthes stellaris
Lepanthes stenophylla
Lepanthes stenosepala
Lepanthes strumosa
Lepanthes suarezii
Lepanthes suavium
Lepanthes subulata
Lepanthes sucumbiensis
Lepanthes superposita
Lepanthes synema
Lepanthes systole
Lepanthes tactiquensis
Lepanthes tamaensis
Lepanthes tanekes
Lepanthes tecpanica
Lepanthes tentaculata
Lepanthes tenuiloba
Lepanthes teres
Lepanthes tetracola
Lepanthes tetroptera
Lepanthes thoerleae
Lepanthes thurstoniorum
Lepanthes thylax
Lepanthes tibouchinicola
Lepanthes tortilis
Lepanthes totontepecensis
Lepanthes tracheia
Lepanthes trichocaulis
Lepanthes trichodactyla
Lepanthes tridentata
Lepanthes trifurcata
Lepanthes trimerinx
Lepanthes tritaria
Lepanthes troxis
Lepanthes turquinoensis
Lepanthes umbonata
Lepanthes umbonifera

Lepanthes unguicularis
Lepanthes unijuga
Lepanthes usitata
Lepanthes uxoria
Lepanthes vaginans
Lepanthes valenciae
Lepanthes valerioi
Lepanthes vareschii
Lepanthes vasquezii
Lepanthes vatrax
Lepanthes velifera
Lepanthes venusta
Lepanthes verapazensis
Lepanthes vermicularis
Lepanthes vespa
Lepanthes viahoensis
Lepanthes vieirae
Lepanthes vinacea
Lepanthes vivipara
Lepanthes vogelii
Lepanthes wagneri
Lepanthes wendtii
Lepanthes woodburyana
Lepanthes woodfredensis
Lepanthes woodiana
Lepanthes wrightii
Lepanthes wulfschlaegelii
Lepanthes yubarta
Lepanthes yuvilensis
Lepanthes zamorensis
Lepanthes zapatae
Lepanthes zettleri
Lepanthes zongoensis
Lepanthes zunagensis
Lepanthes zygon
Lepanthopsis anthoectenium
Lepanthopsis aristata
Lepanthopsis atrosetifera
Lepanthopsis barahonensis
Lepanthopsis calva
Lepanthopsis comet-haileyi
Lepanthopsis constanzensis
Lepanthopsis cucullata
Lepanthopsis culiculosa
Lepanthopsis densiflora
Lepanthopsis dewildei
Lepanthopsis dodii
Lepanthopsis farrago
Lepanthopsis glandulifera
Lepanthopsis hirtzii
Lepanthopsis hotteana
Lepanthopsis lingulata
Lepanthopsis micheleae
Lepanthopsis microlepanthes
Lepanthopsis moniliformis



<i>Lepanthopsis obliquipetala</i>	<i>Macroclinium roseum</i>
<i>Lepanthopsis ornipteridion</i>	<i>Macroclinium simplex</i>
<i>Lepanthopsis peniculus</i>	<i>Macroclinium villenaorum</i>
<i>Lepanthopsis prolifera</i>	<i>Macroclinium wulschlaegelianum</i>
<i>Lepanthopsis pulchella</i>	<i>Malleola batakensis</i>
<i>Lepanthopsis purpurata</i>	<i>Malleola kawakamii</i>
<i>Lepanthopsis pygmaea</i>	<i>Malleola macranthera</i>
<i>Lepanthopsis rinkei</i>	<i>Malleola pallida</i>
<i>Lepanthopsis serrulata</i>	<i>Malleola seidenfadenii</i>
<i>Lepanthopsis stellaris</i>	<i>Malleola wariana</i>
<i>Lepanthopsis steyermarkii</i>	<i>Margelliantha caffra</i>
<i>Lepanthopsis ubangii</i>	<i>Margelliantha clavata</i>
<i>Lepanthopsis vellozicola</i>	<i>Masdevallia abbreviata</i>
<i>Lepanthopsis woodsiana</i>	<i>Masdevallia acaroi</i>
<i>Leptotes bohnkiana</i>	<i>Masdevallia adamsii</i>
<i>Leptotes vellozicola</i>	<i>Masdevallia agaster</i>
<i>Macradenia amazonica</i>	<i>Masdevallia albella</i>
<i>Macradenia paulensis</i>	<i>Masdevallia ametroglossa</i>
<i>Macradenia regnellii</i>	<i>Masdevallia amoena</i>
<i>Macroclinium aduncum</i>	<i>Masdevallia amplexa</i>
<i>Macroclinium alleniorum</i>	<i>Masdevallia ampullacea</i>
<i>Macroclinium bicolor</i>	<i>Masdevallia anceps</i>
<i>Macroclinium biflorum</i>	<i>Masdevallia anemone</i>
<i>Macroclinium borjaense</i>	<i>Masdevallia anfracta</i>
<i>Macroclinium brasiliense</i>	<i>Masdevallia anisomorpha</i>
<i>Macroclinium calceolare</i>	<i>Masdevallia anomala</i>
<i>Macroclinium chasei</i>	<i>Masdevallia aphanes</i>
<i>Macroclinium christensonii</i>	<i>Masdevallia apparitio</i>
<i>Macroclinium coffeicola</i>	<i>Masdevallia aptera</i>
<i>Macroclinium confertum</i>	<i>Masdevallia arangoi</i>
<i>Macroclinium cordesii</i>	<i>Masdevallia ariasii</i>
<i>Macroclinium dalessandroi</i>	<i>Masdevallia arminii</i>
<i>Macroclinium dalstroemii</i>	<i>Masdevallia aurea</i>
<i>Macroclinium dentiferum</i>	<i>Masdevallia aurorae</i>
<i>Macroclinium doderoi</i>	<i>Masdevallia barrowii</i>
<i>Macroclinium escobarianum</i>	<i>Masdevallia bennettii</i>
<i>Macroclinium exiguum</i>	<i>Masdevallia berthae</i>
<i>Macroclinium generalense</i>	<i>Masdevallia boliviensis</i>
<i>Macroclinium glicensteinii</i>	<i>Masdevallia bottae</i>
<i>Macroclinium hirtzii</i>	<i>Masdevallia brachyantha</i>
<i>Macroclinium junctum</i>	<i>Masdevallia brachyura</i>
<i>Macroclinium lexarzanum</i>	<i>Masdevallia brenneri</i>
<i>Macroclinium lilacinum</i>	<i>Masdevallia brockmuelleri</i>
<i>Macroclinium lineare</i>	<i>Masdevallia bucculenta</i>
<i>Macroclinium lueri</i>	<i>Masdevallia bulbophyllopsis</i>
<i>Macroclinium mirabile</i>	<i>Masdevallia calagrasalis</i>
<i>Macroclinium montis-narae</i>	<i>Masdevallia calcarata</i>
<i>Macroclinium oberonia</i>	<i>Masdevallia calocalix</i>
<i>Macroclinium pachybulbon</i>	<i>Masdevallia calosiphon</i>
<i>Macroclinium paniculatum</i>	<i>Masdevallia calura</i>
<i>Macroclinium paraense</i>	<i>Masdevallia carmenensis</i>
<i>Macroclinium perryi</i>	<i>Masdevallia castor</i>
<i>Macroclinium robustum</i>	<i>Masdevallia catapheres</i>

Figure 5.5 (facing page) *Bulbophyllum lasiochilum* is a handsome, widely cultivated taxon with spreading growths (Grower: White Oak Orchids).

<i>Masdevallia chaetostoma</i>	<i>Masdevallia gastrodes</i>
<i>Masdevallia chauceae</i>	<i>Masdevallia geminiflora</i>
<i>Masdevallia chimboensis</i>	<i>Masdevallia (as Luzama) gemmula</i>
<i>Masdevallia chontalensis</i>	<i>Masdevallia gentianoides</i>
<i>Masdevallia citrinella</i>	<i>Masdevallia glomerosa</i>
<i>Masdevallia clandestina</i>	<i>Masdevallia gloriae</i>
<i>Masdevallia cleistogama</i>	<i>Masdevallia guayanensis</i>
<i>Masdevallia cloesii</i>	<i>Masdevallia guerreroi</i>
<i>Masdevallia cocopatae</i>	<i>Masdevallia gutierrezii</i>
<i>Masdevallia collantesii</i>	<i>Masdevallia harlequina</i>
<i>Masdevallia collina</i>	<i>Masdevallia hartman-filii</i>
<i>Masdevallia condorensis</i>	<i>Masdevallia heideri</i>
<i>Masdevallia cordeliana</i>	<i>Masdevallia helenae</i>
<i>Masdevallia cranion</i>	<i>Masdevallia helgae</i>
<i>Masdevallia crassicaulis</i>	<i>Masdevallia henniae</i>
<i>Masdevallia crescenticola</i>	<i>Masdevallia herraduræ</i>
<i>Masdevallia crenata</i>	<i>Masdevallia heteroptera</i>
<i>Masdevallia cuprea</i>	<i>Masdevallia hians</i>
<i>Masdevallia cupularis</i>	<i>Masdevallia hubeinii</i>
<i>Masdevallia curtipes</i>	<i>Masdevallia hydrae</i>
<i>Masdevallia cylix</i>	<i>Masdevallia hymenantha</i>
<i>Masdevallia dalessandroi</i>	<i>Masdevallia icterina</i>
<i>Masdevallia deceptrix</i>	<i>Masdevallia inamoena</i>
<i>Masdevallia dejonghei</i>	<i>Masdevallia indecora</i>
<i>Masdevallia delphinus</i>	<i>Masdevallia instar</i>
<i>Masdevallia deniseana</i>	<i>Masdevallia irapana</i>
<i>Masdevallia descendens</i>	<i>Masdevallia iris</i>
<i>Masdevallia dimorphotricha</i>	<i>Masdevallia ishikoi</i>
<i>Masdevallia discoidea</i>	<i>Masdevallia isos</i>
<i>Masdevallia discolor</i>	<i>Masdevallia ivanii</i>
<i>Masdevallia draconis</i>	<i>Masdevallia jarae</i>
<i>Masdevallia dreisei</i>	<i>Masdevallia josei</i>
<i>Masdevallia dryada</i>	<i>Masdevallia klabochorum</i>
<i>Masdevallia dubbeldamii</i>	<i>Masdevallia kyphonantha</i>
<i>Masdevallia dynastes</i>	<i>Masdevallia lamia</i>
<i>Masdevallia ejiriana</i>	<i>Masdevallia lankesteriana</i>
<i>Masdevallia elachys</i>	<i>Masdevallia lansbergii</i>
<i>Masdevallia empusa</i>	<i>Masdevallia lappifera</i>
<i>Masdevallia ephelota</i>	<i>Masdevallia lata</i>
<i>Masdevallia estradae</i>	<i>Masdevallia lenae</i>
<i>Masdevallia eucharis</i>	<i>Masdevallia leonardoi</i>
<i>Masdevallia eumeces</i>	<i>Masdevallia leucantha</i>
<i>Masdevallia eurynogaster</i>	<i>Masdevallia lewisii</i>
<i>Masdevallia expansa</i>	<i>Masdevallia lilianae</i>
<i>Masdevallia experts</i>	<i>Masdevallia lophina</i>
<i>Masdevallia exquisita</i>	<i>Masdevallia loui</i>
<i>Masdevallia falcago</i>	<i>Masdevallia ludibunda</i>
<i>Masdevallia fasciata</i>	<i>Masdevallia ludibundella</i>
<i>Masdevallia filaria</i>	<i>Masdevallia lynniana</i>
<i>Masdevallia flaveola</i>	<i>Masdevallia macrogenia</i>
<i>Masdevallia foetens</i>	<i>Masdevallia manchinazae</i>
<i>Masdevallia formosa</i>	<i>Masdevallia mandarina</i>
<i>Masdevallia fosterae</i>	<i>Masdevallia manoloi</i>
<i>Masdevallia frilehmannii</i>	<i>Masdevallia manta</i>
<i>Masdevallia fulvescens</i>	<i>Masdevallia marginella</i>

<i>Masdevallia marizae</i>	<i>Masdevallia popowiana</i>
<i>Masdevallia martineae</i>	<i>Masdevallia priscillana</i>
<i>Masdevallia mascarata</i>	<i>Masdevallia proboscoidea</i>
<i>Masdevallia mataxa</i>	<i>Masdevallia purpurella</i>
<i>Masdevallia maxilimax</i>	<i>Masdevallia pyknosepala</i>
<i>Masdevallia mayaycu</i>	<i>Masdevallia quasimodo</i>
<i>Masdevallia medinae</i>	<i>Masdevallia racemosa</i>
<i>Masdevallia melanoglossa</i>	<i>Masdevallia rana-aurea</i>
<i>Masdevallia melanopus</i>	<i>Masdevallia rechingeriana</i>
<i>Masdevallia meleagris</i>	<i>Masdevallia recurvata</i>
<i>Masdevallia mentosa</i>	<i>Masdevallia renzii</i>
<i>Masdevallia merinoi</i>	<i>Masdevallia repanda</i>
<i>Masdevallia microptera</i>	<i>Masdevallia revoluta</i>
<i>Masdevallia microsiphon</i>	<i>Masdevallia rex</i>
<i>Masdevallia midas</i>	<i>Masdevallia rhodehameliana</i>
<i>Masdevallia milagroii</i>	<i>Masdevallia ricii</i>
<i>Masdevallia minuta</i>	<i>Masdevallia rodolfoi</i>
<i>Masdevallia molossoides</i>	<i>Masdevallia rolfeana</i>
<i>Masdevallia molossus</i>	<i>Masdevallia rubeola</i>
<i>Masdevallia morochoi</i>	<i>Masdevallia rubiginosa</i>
<i>Masdevallia mutica</i>	<i>Masdevallia rufescens</i>
<i>Masdevallia naranjapatae</i>	<i>Masdevallia ruizii</i>
<i>Masdevallia nebulina</i>	<i>Masdevallia ruthiana</i>
<i>Masdevallia nicaraguae</i>	<i>Masdevallia sanchezii</i>
<i>Masdevallia nigricans</i>	<i>Masdevallia sanctae-fidei</i>
<i>Masdevallia nijhuisiae</i>	<i>Masdevallia sanctae-rosae</i>
<i>Masdevallia nikoleana</i>	<i>Masdevallia sanguinea</i>
<i>Masdevallia nitens</i>	<i>Masdevallia scalpellifera</i>
<i>Masdevallia nivea</i>	<i>Masdevallia schizantha</i>
<i>Masdevallia obscurans</i>	<i>Masdevallia schizopetala</i>
<i>Masdevallia omorenoi</i>	<i>Masdevallia schizostigma</i>
<i>Masdevallia ophioglossa</i>	<i>Masdevallia schoonenii</i>
<i>Masdevallia oreas</i>	<i>Masdevallia schroederiana</i>
<i>Masdevallia ortalis</i>	<i>Masdevallia schudelii</i>
<i>Masdevallia os-draconis</i>	<i>Masdevallia scobina</i>
<i>Masdevallia os-viperarum</i>	<i>Masdevallia scopaea</i>
<i>Masdevallia oscitans</i>	<i>Masdevallia securae</i>
<i>Masdevallia pantomima</i>	<i>Masdevallia semiteres</i>
<i>Masdevallia papillosa</i>	<i>Masdevallia sentinella</i>
<i>Masdevallia paquishae</i>	<i>Masdevallia serendipita</i>
<i>Masdevallia parsonsii</i>	<i>Masdevallia sernae</i>
<i>Masdevallia parvula</i>	<i>Masdevallia setipes</i>
<i>Masdevallia patchicutzae</i>	<i>Masdevallia singeri</i>
<i>Masdevallia pernix</i>	<i>Masdevallia siphonantha</i>
<i>Masdevallia persicina</i>	<i>Masdevallia smallmaniana</i>
<i>Masdevallia phacopsis</i>	<i>Masdevallia solomoni</i>
<i>Masdevallia phasmatodes</i>	<i>Masdevallia sonnemarkii</i>
<i>Masdevallia phlogina</i>	<i>Masdevallia staaliana</i>
<i>Masdevallia phoebe</i>	<i>Masdevallia stigii</i>
<i>Masdevallia pileata</i>	<i>Masdevallia strattoniana</i>
<i>Masdevallia planadensis</i>	<i>Masdevallia striatella</i>
<i>Masdevallia plantaginea</i>	<i>Masdevallia strigosa</i>
<i>Masdevallia pleurothalloides</i>	<i>Masdevallia strumifera</i>
<i>Masdevallia pollux</i>	<i>Masdevallia sulphurella</i>
<i>Masdevallia polychroma</i>	<i>Masdevallia telloi</i>

Masdevallia tentaculata
Masdevallia thienii
Masdevallia tinekeae
Masdevallia tokachiorum
Masdevallia tonsijmii
Masdevallia trautmanniana
Masdevallia tricallosa
Masdevallia tricycla
Masdevallia trigonopetala
Masdevallia truncata
Masdevallia tubata
Masdevallia tubuliflora
Masdevallia tubulosa
Masdevallia urceolaris
Masdevallia utriculata
Masdevallia Vargasii
Masdevallia Vasquezii
Masdevallia venatoria
Masdevallia venezuelana
Masdevallia ventricosa
Masdevallia Venus
Masdevallia verecunda
Masdevallia vexillifera
Masdevallia vieriana
Masdevallia virens
Masdevallia vittatula
Masdevallia vomeris
Masdevallia Wageneriana
Masdevallia Wuefinghoffiana
Masdevallia Wuellneri
Masdevallia x alvaroi
Masdevallia x mystica
Masdevallia xanthodactyla
Masdevallia ximenesae
Masdevallia Zahlbruckneri
Masdevallia zamorensis
Masdevallia zapatae
Masdevallia zebracea
Masdevallia zongoensis
Masdevallia zumbuehlerae
Maxillaria atwoodiana
Maxillaria acostae
Maxillaria breviscapa
Maxillaria brachybulbon
Maxillaria broadwayi
Maxillaria caparaoensis
Maxillaria cauae
Maxillaria confusa
Maxillaria flabellata
Maxillaria grandimentum
Maxillaria lilliputiana
Maxillaria muscoides
Maxillaria ortizii
Maxillaria parahybunensis
Maxillaria praetexta

Maxillaria ramonensis
Maxillaria saragurensis
Maxillaria strictifolia
Maxillaria truncatilabia
Maxillaria virguncula
Maxillaria woytkowskii
Maxillaria xylobiiflora
Maxillariella caespitifica
Maxillariella cobanensis
Maxillariella graminifolia
Maxillariella stenophylla
Mediocalcar agathodaemonis
Mediocalcar bulbophylloides
Mediocalcar geniculatum
Mediocalcar pygmaeum
Mediocalcar stevenscoodei
Mediocalcar subteres
Mediocalcar umboiense
Mediocalcar uniflorum
Microcoelia macrorhynchia
Microcoelia moreauae
Microsaccus affinis
Microsaccus ampullaceus
Microsaccus canaliculatus
Microsaccus dempoensis
Microsaccus javensis
Microsaccus sumatranus
Microsaccus truncatus
Microtatorchis acuminata
Microtatorchis brachyceras
Microtatorchis bracteata
Microtatorchis bryoides
Microtatorchis carinata
Microtatorchis ceratostylis
Microtatorchis chaetophora
Microtatorchis collina
Microtatorchis finisterrae
Microtatorchis govidjoae
Microtatorchis javanica
Microtatorchis kaniensis
Microtatorchis lamii
Microtatorchis multiflora
Microtatorchis muriculata
Microtatorchis muscifformis
Microtatorchis oreophila
Microtatorchis papillosa
Microtatorchis perpusilla
Microtatorchis platyrhachis
Microtatorchis potamophila
Microtatorchis pterophora
Microtatorchis rhomboglossa
Microtatorchis samoensis
Microtatorchis schlechteri
Microtatorchis steenisii
Microtatorchis torricellensis

<i>Microterangis oligantha</i>	<i>Oberonia finisterrae</i>
<i>Mormolyca suareziorum</i>	<i>Oberonia fissipetala</i>
<i>Mystacidium alicae</i>	<i>Oberonia gammiei</i>
<i>Mystacidium flanaganii</i>	<i>Oberonia gracilipes</i>
<i>Mystacidium pulchellum</i>	<i>Oberonia griffithiana</i>
<i>Mystacidium pusillum</i>	<i>Oberonia helferi</i>
<i>Mystacidium tanganyikense</i>	<i>Oberonia insularis</i>
<i>Neobathiea keraudrenae</i>	<i>Oberonia integerrima</i>
<i>Neofinetia xichangensis</i>	<i>Oberonia intermedia</i>
<i>Nohawilliamsia pirarensis</i>	<i>Oberonia jenkinsiana</i>
<i>Nothodoritis zhejiangensis</i>	<i>Oberonia japonica</i>
<i>Notylia angustifolia</i>	<i>Oberonia kingii</i>
<i>Notylia aromatica</i>	<i>Oberonia latipetala</i>
<i>Notylia buchtienii</i>	<i>Oberonia leytenis</i>
<i>Notylia carnosiflora</i>	<i>Oberonia lobulata</i>
<i>Notylia flexuosa</i>	<i>Oberonia longibracteata</i>
<i>Notylia hemitricha</i>	<i>Oberonia longilabris</i>
<i>Notylia inversa</i>	<i>Oberonia lotsyana</i>
<i>Notylia koehleri</i>	<i>Oberonia maboroensis</i>
<i>Notylia lyrata</i>	<i>Oberonia mannii</i>
<i>Notylia morenoi</i>	<i>Oberonia marina</i>
<i>Notylia nemorosa</i>	<i>Oberonia muriculata</i>
<i>Notylia obtusa</i>	<i>Oberonia nayarii</i>
<i>Notylia odontonotos</i>	<i>Oberonia nephroglossa</i>
<i>Notylia orbicularis</i>	<i>Oberonia obcordata</i>
<i>Notylia pittieri</i>	<i>Oberonia ovalis</i>
<i>Notylia pubescens</i>	<i>Oberonia pachyphylla</i>
<i>Notylia punctata</i>	<i>Oberonia pachyrachis</i>
<i>Notylia punoensis</i>	<i>Oberonia papillosa</i>
<i>Notylia replicata</i>	<i>Oberonia platycaulon</i>
<i>Notylia rimbachii</i>	<i>Oberonia podostachys</i>
<i>Notylia sagittifera</i>	<i>Oberonia polyschista</i>
<i>Notylia stenantha</i>	<i>Oberonia potamophila</i>
<i>Oberonia acarus</i>	<i>Oberonia proudlockii</i>
<i>Oberonia acaulis</i>	<i>Oberonia pumilio</i>
<i>Oberonia agamensis</i>	<i>Oberonia punctata</i>
<i>Oberonia angustifolia</i>	<i>Oberonia pyrulifera</i>
<i>Oberonia anthropophora</i>	<i>Oberonia quadrata</i>
<i>Oberonia arcuata</i>	<i>Oberonia quadridentata</i>
<i>Oberonia aurea</i>	<i>Oberonia recurva</i>
<i>Oberonia bertoldii</i>	<i>Oberonia repens</i>
<i>Oberonia bicornis</i>	<i>Oberonia rhizophoretii</i>
<i>Oberonia boerlageana</i>	<i>Oberonia rhodostachys</i>
<i>Oberonia brachyphylla</i>	<i>Oberonia rosea</i>
<i>Oberonia brachystachys</i>	<i>Oberonia ruberrima</i>
<i>Oberonia brevispica</i>	<i>Oberonia rufilabris</i>
<i>Oberonia caulescens</i>	<i>Oberonia santapau</i>
<i>Oberonia ciliolata</i>	<i>Oberonia sarcophylla</i>
<i>Oberonia clarkei</i>	<i>Oberonia scapigera</i>
<i>Oberonia dissitiflora</i>	<i>Oberonia segawae</i>
<i>Oberonia disticha</i>	<i>Oberonia seidenfadenii</i>
<i>Oberonia elongata</i>	<i>Oberonia semifimbriata</i>
<i>Oberonia emarginata</i>	<i>Oberonia stenophylla</i>
<i>Oberonia evrardii</i>	<i>Oberonia suborbicularis</i>
<i>Oberonia falconeri</i>	<i>Oberonia teres</i>

<i>Oberonia thwaitesii</i>	<i>Octomeria wilsoniana</i>
<i>Oberonia tixieri</i>	<i>Oeceoclades angustifolia</i>
<i>Oberonia trigonoglossa</i>	<i>Oeceoclades antsingyensis</i>
<i>Oberonia trochopetala</i>	<i>Oeceoclades sclerophylla</i>
<i>Oberonia truncatiglossa</i>	<i>Oestlundia ligulata</i>
<i>Oberonia valettoniana</i>	<i>Oestlundia tenuissima</i>
<i>Oberonia variabilis</i>	<i>Omoea micrantha</i>
<i>Oberonia verticillata</i>	<i>Oncidium abortivoides</i>
<i>Oberonia wightiana</i>	<i>Oncidium aristuliferum</i>
<i>Octarrhena amesiana</i>	<i>Oncidium auriculatoides</i>
<i>Octarrhena goliathensis</i>	<i>Oncidium baccatum</i>
<i>Octarrhena lorentzii</i>	<i>Oncidium brownii</i>
<i>Octarrhena oberonioides</i>	<i>Oncidium buchtienoides</i>
<i>Octarrhena parvula</i>	<i>Oncidium cuculligerum</i>
<i>Octarrhena pusilla</i>	<i>Oncidium curvipetalum</i>
<i>Octarrhena tenuis</i>	<i>Oncidium dulcineae</i>
<i>Octomeria acicularis</i>	<i>Oncidium flavobrunneum</i>
<i>Octomeria albopurpurea</i>	<i>Oncidium gentryi</i>
<i>Octomeria aloifolia</i>	<i>Oncidium hirtzoides</i>
<i>Octomeria campos-portoi</i>	<i>Oncidium koenigeri</i>
<i>Octomeria decumbens</i>	<i>Oncidium lehmannianum</i>
<i>Octomeria diaphana</i>	<i>Oncidium leopardinum</i>
<i>Octomeria exigua</i>	<i>Oncidium macrobulbon</i>
<i>Octomeria frenchiana</i>	<i>Oncidium minaxoides</i>
<i>Octomeria fimbriata</i>	<i>Oncidium morgani</i>
<i>Octomeria fusiformis</i>	<i>Oncidium oxyceras</i>
<i>Octomeria gemmula</i>	<i>Oncidium panduratoides</i>
<i>Octomeria integrilabia</i>	<i>Oncidium papilioides</i>
<i>Octomeria javaensis</i>	<i>Oncidium perpusillum</i>
<i>Octomeria lancipetala</i>	<i>Oncidium pichinchense</i>
<i>Octomeria linearifolia</i>	<i>Oncidium poikilostalix</i>
<i>Octomeria micrantha</i>	<i>Oncidium portillae</i>
<i>Octomeria minor</i>	<i>Oncidium portillaellum</i>
<i>Octomeria minuta</i>	<i>Oncidium putumayense</i>
<i>Octomeria moscosoae</i>	<i>Oncidium renatoi</i>
<i>Octomeria nana</i>	<i>Oncidium rodrigo</i>
<i>Octomeria odontoglossoides</i>	<i>Oncidium tenuirostre</i>
<i>Octomeria parvula</i>	<i>Ornithidium mapiriense</i>
<i>Octomeria portillae</i>	<i>Ornithidium minutiflorum</i>
<i>Octomeria prostrata</i>	<i>Ornithocephalus aurorae</i>
<i>Octomeria pygmaea</i>	<i>Ornithocephalus biloborostratus</i>
<i>Octomeria recchiana</i>	<i>Ornithocephalus brachystachyus</i>
<i>Octomeria rhodoglossa</i>	<i>Ornithocephalus castelfrancoi</i>
<i>Octomeria riograndensis</i>	<i>Ornithocephalus ciliatus</i>
<i>Octomeria romerorum</i>	<i>Ornithocephalus cujeticola</i>
<i>Octomeria rotundiglossa</i>	<i>Ornithocephalus dressleri</i>
<i>Octomeria sancti-angeli</i>	<i>Ornithocephalus estradae</i>
<i>Octomeria sarthouae</i>	<i>Ornithocephalus gladiatus</i>
<i>Octomeria saundersiana</i>	<i>Ornithocephalus grexanserianus</i>
<i>Octomeria spatulata</i>	<i>Ornithocephalus kalbreyerianus</i>
<i>Octomeria steyermarkii</i>	<i>Ornithocephalus lankesteri</i>
<i>Octomeria tapiricataractae</i>	<i>Ornithocephalus lehmannii</i>
<i>Octomeria wernerii</i>	<i>Ornithocephalus longilabris</i>

Figure 5.6 (facing page) A pair of finely speckled, somewhat translucent *Porroglossum aureum* flowers (Grower: Ron Parsons).



Ornithocephalus manabina
Ornithocephalus micranthus
Ornithocephalus minimiflorus
Ornithocephalus myrticola
Ornithocephalus numenius
Ornithocephalus obergiae
Ornithocephalus patentilobus
Ornithocephalus polyodon
Ornithocephalus powellii
Ornithocephalus suarezii
Ornithocephalus torresii
Ornithocephalus tripterus
Ornithocephalus valerioi
Ornithocephalus vasquezii
Otoglossum globuliferum
Otoglossum harlingii
Otoglossum sancti-paulii
Otoglossum scansor
Otoglossum serpens
Pabstiella aryter
Pabstiella determannii
Pabstiella parvifolia
Pabstiella syringodes
Pabstiella yauaperyensis
Panisea apiculata
Panisea cavaleriei
Panisea tricallosa
Panisea vinhii
Panisea yunnanensis
Paphiopedilum canhii
Paphiopedilum thaianum
Pedilochilus alpinus
Pedilochilus angustifolius
Pedilochilus brachypus
Pedilochilus ciliolatus
Pedilochilus cyatheicola
Pedilochilus dischorensis
Pedilochilus flavus
Pedilochilus guttulatus
Pedilochilus hermonii
Pedilochilus macrorrhinus
Pedilochilus majus
Pedilochilus montanus
Pedilochilus obovatus
Pedilochilus oreadus
Pedilochilus parvulus
Pedilochilus perpusillus
Pedilochilus petiolatus
Pedilochilus petrophilus
Pedilochilus piundaundensis
Pedilochilus pusillus
Pedilochilus sarawakatensis
Pedilochilus stictanthus
Pedilochilus subalpinus
Pedilochilus terrestris

Penducella ariasiana
Penducella cardiocheila
Penducella catella
Penducella caveroi
Penducella chelosepala
Penducella chilopsis
Penducella ciliaris
Penducella composita
Penducella cordilabia
Penducella dactyla
Penducella destituta
Penducella exigua
Penducella geminipetala
Penducella irrasa
Penducella lunaris
Penducella lupula
Penducella lynniana
Penducella macrotica
Penducella micropetala
Penducella monilia
Penducella montis-rotundi
Penducella octocornuta
Penducella pendens
Penducella persimilis
Penducella pholeter
Penducella pseudocaulescens
Penducella ricii
Penducella triangularis
Penducella tridactyla
Penducella ursula
Penducella viebrockiana
Penducella wernerii
Pennilabium angraecum
Pennilabium armanii
Pennilabium aurantiacum
Pennilabium lampongense
Pennilabium struthio
Phloeophila cymbula
Phloeophila dasyglossa
Phloeophila nummularia
Phloeophila oricola
Phloeophila ursula
Phloeophila yupanki
Pholidota longilabra
Pholidota missionariorum
Pholidota pachyglossa
Pholidota pygmaea
Phreatia amabilis
Phreatia amesii
Phreatia bismarckiensis
Phreatia brachyphylla
Phreatia brevicaulis
Phreatia brevis
Phreatia bulbophylloides
Phreatia chionantha

<i>Phreatia crassiuscula</i>	<i>Platystele consobrina</i>
<i>Phreatia dendrochiloides</i>	<i>Platystele cornejoi</i>
<i>Phreatia dischorensis</i>	<i>Platystele crinita</i>
<i>Phreatia finisterrae</i>	<i>Platystele dalstroemii</i>
<i>Phreatia formosana</i>	<i>Platystele delhierroi</i>
<i>Phreatia gracilis</i>	<i>Platystele dewildei</i>
<i>Phreatia imitans</i>	<i>Platystele dodsonii</i>
<i>Phreatia jadunae</i>	<i>Platystele dressleri</i>
<i>Phreatia lasioglossa</i>	<i>Platystele edmundoi</i>
<i>Phreatia leptophylla</i>	<i>Platystele enervis</i>
<i>Phreatia longibracteata</i>	<i>Platystele escalerae</i>
<i>Phreatia mentosa</i>	<i>Platystele examen-culicum</i>
<i>Phreatia microphyton</i>	<i>Platystele filamentosa</i>
<i>Phreatia microtatantha</i>	<i>Platystele fimbriata</i>
<i>Phreatia minima</i>	<i>Platystele gaileana</i>
<i>Phreatia monticola</i>	<i>Platystele gyroglossa</i>
<i>Phreatia oreogena</i>	<i>Platystele hampshireae</i>
<i>Phreatia plantaginifolia</i>	<i>Platystele hirtzii</i>
<i>Phreatia protensa</i>	<i>Platystele hyalina</i>
<i>Phreatia pumilio</i>	<i>Platystele ingramii</i>
<i>Phreatia seleniglossa</i>	<i>Platystele jamboeensis</i>
<i>Phreatia sororia</i>	<i>Platystele jesupiorum</i>
<i>Phreatia stenophylla</i>	<i>Platystele johnstonii</i>
<i>Phreatia stipulata</i>	<i>Platystele jungermannioides</i>
<i>Phreatia subcrenulata</i>	<i>Platystele lawessonii</i>
<i>Phreatia taiwaniana</i>	<i>Platystele lehmannii</i>
<i>Phreatia tenuis</i>	<i>Platystele londonoana</i>
<i>Phreatia tjibodasana</i>	<i>Platystele lycopodioides</i>
<i>Phreatia transversiloba</i>	<i>Platystele megaloglossa</i>
<i>Phreatia trilobulata</i>	<i>Platystele microglossa</i>
<i>Phreatia virescens</i>	<i>Platystele microscopica</i>
<i>Phymatidium aquinoi</i>	<i>Platystele microtatantha</i>
<i>Phymatidium geiselii</i>	<i>Platystele minimiflora</i>
<i>Phymatidium glaziovii</i>	<i>Platystele misasiana</i>
<i>Phymatidium hysteroanthum</i>	<i>Platystele misera</i>
<i>Phymatidium limae</i>	<i>Platystele muscicola</i>
<i>Phymatidium mellobarretoii</i>	<i>Platystele myoxura</i>
<i>Phymatidium microphyllum</i>	<i>Platystele napintzae</i>
<i>Phymatidium vogelii</i>	<i>Platystele oblecta</i>
<i>Platystele acicularis</i>	<i>Platystele orchestris</i>
<i>Platystele aculeata</i>	<i>Platystele orectoglossa</i>
<i>Platystele acutilingua</i>	<i>Platystele ornata</i>
<i>Platystele adelphe</i>	<i>Platystele ovalifolia</i>
<i>Platystele aianthera</i>	<i>Platystele ovatilabia</i>
<i>Platystele altarica</i>	<i>Platystele oxyglossa</i>
<i>Platystele alucitae</i>	<i>Platystele papillosa</i>
<i>Platystele argentosa</i>	<i>Platystele paraensis</i>
<i>Platystele beatricis</i>	<i>Platystele pedicellaris</i>
<i>Platystele bernoullii</i>	<i>Platystele perpusilla</i>
<i>Platystele bovilinquis</i>	<i>Platystele pisifera</i>
<i>Platystele brenneri</i>	<i>Platystele portillae</i>
<i>Platystele calymna</i>	<i>Platystele posadarum</i>
<i>Platystele caudatisepala</i>	<i>Platystele propinqua</i>
<i>Platystele cellulosa</i>	<i>Platystele psix</i>
<i>Platystele compacta</i>	<i>Platystele pubescens</i>

Platystele pyriformis
Platystele rauhii
Platystele reflexa
Platystele resimula
Platystele rhinocera
Platystele risaraldae
Platystele sancristobalensis
Platystele schneideri
Platystele scopulifera
Platystele spatulata
Platystele speckmaieri
Platystele stellaris
Platystele stevensonii
Platystele steyermarkii
Platystele stonyx
Platystele sulcata
Platystele taylorii
Platystele tobarii
Platystele vetulus
Platystele viridis
Platystele ximenae
Plectrophora calcarhamata
Plectrophora edwallii
Plectrophora iridifolia
Plectrophora schmidtii
Plectrophora suarezii
Plectrophora tucanderana
Plectrophora zarumensis
Pleurothallis abortiva
Pleurothallis acesitophylla
Pleurothallis acutilabia
Pleurothallis ambyx
Pleurothallis appendiculata
Pleurothallis archicolonae
Pleurothallis arctata
Pleurothallis atrohiata
Pleurothallis aurita
Pleurothallis baborucensis
Pleurothallis baudoensis
Pleurothallis bitumida
Pleurothallis bowmannii
Pleurothallis bradei
Pleurothallis bucranon
Pleurothallis calcarata
Pleurothallis candida
Pleurothallis caniceps
Pleurothallis carinifera
Pleurothallis carrenoi
Pleurothallis caymanensis
Pleurothallis conspersa
Pleurothallis cordilabia
Pleurothallis crucifera
Pleurothallis curti-bradei
Pleurothallis dejavu
Pleurothallis dorotheae

Pleurothallis dracula
Pleurothallis dressleri
Pleurothallis driessenii
Pleurothallis dubbeldamii
Pleurothallis ekmanii
Pleurothallis erosa
Pleurothallis erythrium
Pleurothallis excavata
Pleurothallis excentrica
Pleurothallis fluminensis
Pleurothallis fustifera
Pleurothallis hammelii
Pleurothallis hemileuca
Pleurothallis inornata
Pleurothallis jaramilloi
Pleurothallis karlii
Pleurothallis kateora
Pleurothallis kerrii
Pleurothallis laxa
Pleurothallis leucantha
Pleurothallis leucopyramis
Pleurothallis lingua
Pleurothallis lobata
Pleurothallis magnipetala
Pleurothallis matinhensis
Pleurothallis miniatura
Pleurothallis miragliae
Pleurothallis miranda
Pleurothallis niesseniae
Pleurothallis nitida
Pleurothallis obpyriformis
Pleurothallis ocellus
Pleurothallis orecta
Pleurothallis pallida
Pleurothallis parvula
Pleurothallis pendens
Pleurothallis periniocephala
Pleurothallis phyllocardioides
Pleurothallis phymatodea
Pleurothallis podoglossa
Pleurothallis privigna
Pleurothallis prostrata
Pleurothallis quadridentata
Pleurothallis quisqueyana
Pleurothallis reptans
Pleurothallis rostratissima
Pleurothallis rubella
Pleurothallis rubroinversa
Pleurothallis saccatilabia
Pleurothallis sanchoi
Pleurothallis scaphipetala
Pleurothallis sergioi
Pleurothallis simulans
Pleurothallis sordida
Pleurothallis sphaerantha

Pleurothallis spiloporphys
Pleurothallis stevensonii
Pleurothallis testifolia
Pleurothallis tetrachaeta
Pleurothallis transversilabia
Pleurothallis trichophora
Pleurothallis tridentata
Pleurothallis upanoensis
Pleurothallis xenion
Pleurothallis ximenae
Pleurothallopsis inaequalis
Pleurothallopsis mulderae
Pleurothallopsis niesseniae
Pleurothallopsis reichenbachiana
Pleurothallopsis rinkei
Pleurothallopsis striata
Pleurothallopsis ujarrensis
Polystachya acridolens
Polystachya boliviensis
Polystachya brassii
Polystachya caduca
Polystachya calluniflora
Polystachya confusa
Polystachya coriscensis
Polystachya cornigera
Polystachya disiformis
Polystachya epiphytica
Polystachya erythrocephala
Polystachya heckmanniana
Polystachya holstii
Polystachya humbertii
Polystachya kaluluensis
Polystachya kermesina
Polystachya mafingensis
Polystachya magnibracteata
Polystachya malilaensis
Polystachya melanantha
Polystachya modesta
Polystachya mzuzuensis
Polystachya parva
Polystachya pergibbosa
Polystachya pobeguinii
Polystachya purpureobracteata
Polystachya rosellata
Polystachya saccata
Polystachya seticaulis
Polystachya stuhlmannii
Polystachya teitensis
Polystachya tenuissima
Polystachya undulata
Polystachya victoriae
Porroglossum actrix
Porroglossum adrianae
Porroglossum agile
Porroglossum amethystinum

Porroglossum apoloae
Porroglossum aureum
Porroglossum condylosepalum
Porroglossum dactylum
Porroglossum dalstroemii
Porroglossum dejonghei
Porroglossum echidna
Porroglossum gerritsenianum
Porroglossum hoeijeri
Porroglossum hystrix
Porroglossum jesupiae
Porroglossum lexorium
Porroglossum lorenae
Porroglossum lycinum
Porroglossum marniae
Porroglossum merinoi
Porroglossum miguelangelii
Porroglossum myosurotum
Porroglossum nutibara
Porroglossum olivaceum
Porroglossum oversteegenianum
Porroglossum parsonsii
Porroglossum peruvianum
Porroglossum porphyreum
Porroglossum procul
Porroglossum roseariae
Porroglossum schramii
Porroglossum sijmii
Porroglossum taylorianum
Porroglossum teretilabia
Porroglossum tokachii
Porroglossum tripollex
Porroglossum uxorium
Porroglossum zelenkoi
Promenaea acuminata
Promenaea albescens
Promenaea catharinensis
Promenaea dusenii
Promenaea fuerstenbergiana
Promenaea guttata
Promenaea malmquistiana
Promenaea microptera
Promenaea nigricans
Promenaea paranaensis
Promenaea riograndensis
Promenaea sincorana
Prosthechea kautskyi
Prosthechea pygmaea
Pterostemma antioquiense
Pterostemma benzingii
Pygmaeorchis brasiliensis
Pygmaeorchis seidelii
Quekettia microscopica
Quekettia papillosa
Quekettia pygmaea



<i>Quekettia vermeuleniana</i>	<i>Samarorchis sulitiana</i>
<i>Quisqueya holdridgei</i>	<i>Sanderella discolor</i>
<i>Quisqueya karstii</i>	<i>Sanderella riograndensis</i>
<i>Rauhiella brasiliensis</i>	<i>Sarcochilus roseus</i>
<i>Rauhiella seehaweri</i>	<i>Sarcochilus serrulatus</i>
<i>Rauhiella silvana</i>	<i>Sauvetrea cornuta</i>
<i>Restrepia aberrans</i>	<i>Sauvetrea napoensis</i>
<i>Restrepia aspasicensis</i>	<i>Sauvetrea uncarinata</i>
<i>Restrepia cuprea</i>	<i>Scaphosepalum andreetae</i>
<i>Restrepia echinata</i>	<i>Scaphosepalum bicristatum</i>
<i>Restrepia echo</i>	<i>Scaphosepalum cloesii</i>
<i>Restrepia elegans</i>	<i>Scaphosepalum delhierroi</i>
<i>Restrepia escobariana</i>	<i>Scaphosepalum digitale</i>
<i>Restrepia howei</i>	<i>Scaphosepalum dodsonii</i>
<i>Restrepia limbata</i>	<i>Scaphosepalum jostii</i>
<i>Restrepia metae</i>	<i>Scaphosepalum manningii</i>
<i>Restrepia mohrii</i>	<i>Scaphosepalum medinae</i>
<i>Restrepia peetersii</i>	<i>Scaphosepalum panduratum</i>
<i>Restrepia piperitosa</i>	<i>Scaphosepalum parviflorum</i>
<i>Restrepia portillae</i>	<i>Scaphosepalum pleurothallodes</i>
<i>Restrepia tabeae</i>	<i>Scaphosepalum portillae</i>
<i>Restrepia tsubotae</i>	<i>Scaphosepalum viviparum</i>
<i>Restrepia wagneri</i>	<i>Scaphosepalum xystra</i>
<i>Rhaesteria eggelingii</i>	<i>Scaphyglottis micrantha</i>
<i>Rhetinantha aciantha</i>	<i>Scaphyglottis subulata</i>
<i>Rhetinantha monacensis</i>	<i>Schoenorchis brevirachis</i>
<i>Rhetinantha notylioglossa</i>	<i>Schoenorchis endertii</i>
<i>Rhipidoglossum cuneatum</i>	<i>Schoenorchis jerdoniana</i>
<i>Rhipidoglossum montanum</i>	<i>Schoenorchis latifolia</i>
<i>Rhipidoglossum orientale</i>	<i>Schoenorchis sarcophylla</i>
<i>Rhipidoglossum paucifolium</i>	<i>Schoenorchis secundiflora</i>
<i>Rodriguezia bockiae</i>	<i>Schoenorchis sumatrana</i>
<i>Rodriguezia carnea</i>	<i>Schoenorchis tixieri</i>
<i>Rodriguezia chasei</i>	<i>Schoenorchis vanoverberghii</i>
<i>Rodriguezia compacta</i>	<i>Schunkea vierlingii</i>
<i>Rodriguezia cuentillensis</i>	<i>Seegeriella pinifolia</i>
<i>Rodriguezia dressleriana</i>	<i>Smithsonia viridiflora</i>
<i>Rodriguezia fernandezii</i>	<i>Solenidium lunatum</i>
<i>Rodriguezia luteola</i>	<i>Specklinia acanthodes</i>
<i>Rodriguezia pulchra</i>	<i>Specklinia acicularis</i>
<i>Rodriguezia strobilii</i>	<i>Specklinia alata</i>
<i>Rodriguezia sucrei</i>	<i>Specklinia alexii</i>
<i>Rodriguezia vasquezii</i>	<i>Specklinia ancora</i>
<i>Saccoglossum maculatum</i>	<i>Specklinia aristata</i>
<i>Saccoglossum papuanum</i>	<i>Specklinia barbae</i>
<i>Saccolabiopsis bakhuisenii</i>	<i>Specklinia bicornis</i>
<i>Saccolabiopsis microphyton</i>	<i>Specklinia blancoi</i>
<i>Saccolabiopsis pusilla</i>	<i>Specklinia brighamella</i>
<i>Saccolabiopsis rara</i>	<i>Specklinia cabellensis</i>
<i>Saccolabiopsis rectifolia</i>	<i>Specklinia cactantha</i>
<i>Saccolabiopsis viridiflora</i>	<i>Specklinia calderae</i>
<i>Saccolabium pusillum</i>	<i>Specklinia calyptrastele</i>
<i>Saccolabium rantii</i>	<i>Specklinia campylotyle</i>

Figure 5.7 (facing page) The petals and lip of the striking *Lepanthes effusa* are brightly coloured and have an almost bat-like shape (Grower: Russ Varnado).

<i>Specklinia catoxys</i>	<i>Specklinia producta</i>
<i>Specklinia cestrochila</i>	<i>Specklinia psichion</i>
<i>Specklinia chontalensis</i>	<i>Specklinia purpurella</i>
<i>Specklinia claviculata</i>	<i>Specklinia quinqueseta</i>
<i>Specklinia coeloglossa</i>	<i>Specklinia recula</i>
<i>Specklinia colombiana</i>	<i>Specklinia (as Muscarella) rojohniae</i>
<i>Specklinia condylata</i>	<i>Specklinia rubrolineata</i>
<i>Specklinia corniculata</i>	<i>Specklinia samacensis</i>
<i>Specklinia corynetes</i>	<i>Specklinia schaeferi</i>
<i>Specklinia costaricensis</i>	<i>Specklinia schudelii</i>
<i>Specklinia curtisii</i>	<i>Specklinia scolopax</i>
<i>Specklinia cycesis</i>	<i>Specklinia segregatifolia</i>
<i>Specklinia cynocephala</i>	<i>Specklinia semperflorens</i>
<i>Specklinia delicatula</i>	<i>Specklinia sibatensis</i>
<i>Specklinia digitale</i>	<i>Specklinia simmleriana</i>
<i>Specklinia displosa</i>	<i>Specklinia simpliciflora</i>
<i>Specklinia dodii</i>	<i>Specklinia stillsonii</i>
<i>Specklinia echinodes</i>	<i>Specklinia striata</i>
<i>Specklinia exesilabia</i>	<i>Specklinia strumosa</i>
<i>Specklinia exilis</i>	<i>Specklinia stumpflei</i>
<i>Specklinia feuilletii</i>	<i>Specklinia subpicta</i>
<i>Specklinia flosculifera</i>	<i>Specklinia tamboensis</i>
<i>Specklinia formondii</i>	<i>Specklinia tempestalis</i>
<i>Specklinia fuchsii</i>	<i>Specklinia tenax</i>
<i>Specklinia fuegii</i>	<i>Specklinia thoerleae</i>
<i>Specklinia furcatipetala</i>	<i>Specklinia trichyphus</i>
<i>Specklinia glandulosa</i>	<i>Specklinia trifida</i>
<i>Specklinia gongylodes</i>	<i>Specklinia trilobata</i>
<i>Specklinia grisebachiana</i>	<i>Specklinia trullifera</i>
<i>Specklinia helenae</i>	<i>Specklinia tsubotae</i>
<i>Specklinia ichthyonekys</i>	<i>Specklinia turrialbae</i>
<i>Specklinia infinita</i>	<i>Specklinia unicornis</i>
<i>Specklinia intonsa</i>	<i>Specklinia villosilabia</i>
<i>Specklinia jesupii</i>	<i>Specklinia (as Muscarella) wernerii</i>
<i>Specklinia kennedyi</i>	<i>Specklinia wrightii</i>
<i>Specklinia latilabris</i>	<i>Specklinia xanthella</i>
<i>Specklinia leptantha</i>	<i>Specklinia (as Muscarella) xyloura</i>
<i>Specklinia lichenicola</i>	<i>Specklinia yucatanensis</i>
<i>Specklinia lipothrix</i>	<i>Specklinia zephyrina</i>
<i>Specklinia llamachoi</i>	<i>Sphyrarhynchus schliebenii</i>
<i>Specklinia longilabris</i>	<i>Stelis abbreviata</i>
<i>Specklinia luis-diegoi</i>	<i>Stelis acutula</i>
<i>Specklinia minuta</i>	<i>Stelis adinostachya</i>
<i>Specklinia mirifica</i>	<i>Stelis affinis</i>
<i>Specklinia mitchelli</i>	<i>Stelis alata</i>
<i>Specklinia morgani</i>	<i>Stelis alba</i>
<i>Specklinia mornicola</i>	<i>Stelis aliquantula</i>
<i>Specklinia mucronata</i>	<i>Stelis alternans</i>
<i>Specklinia napintzae</i>	<i>Stelis amaliae</i>
<i>Specklinia obliquipetala</i>	<i>Stelis ancistra</i>
<i>Specklinia oblonga</i>	<i>Stelis ann-jesupiae</i>
<i>Specklinia pectinifera</i>	<i>Stelis aphidifera</i>
<i>Specklinia perangusta</i>	<i>Stelis apiculifera</i>
<i>Specklinia picta</i>	<i>Stelis applanata</i>
<i>Specklinia pisinna</i>	<i>Stelis aprica</i>

Stelis aquinoana
Stelis ascendens
Stelis asseris
Stelis atrocaerulea
Stelis barbimentosa
Stelis bermejoensis
Stelis bicolor
Stelis bivalvis
Stelis bogotensis
Stelis brachiata
Stelis brachyrachis
Stelis brevissimicaudata
Stelis buccella
Stelis bucculenta
Stelis caespitosa
Stelis calantha
Stelis calotricha
Stelis calyculata
Stelis calyptrata
Stelis campos-portoi
Stelis capitata
Stelis capsula
Stelis carnosilabia
Stelis caroliae
Stelis carpinterae
Stelis cavernula
Stelis chabreana
Stelis chasei
Stelis chlorantha
Stelis chlorina
Stelis choriantha
Stelis ciliatissima
Stelis clipeus
Stelis comica
Stelis compressicaulis
Stelis concinna
Stelis conduplicata
Stelis conochila
Stelis copiosa
Stelis coracina
Stelis coralloides
Stelis coriifolia
Stelis costaricensis
Stelis cotyligera
Stelis crescentiicola
Stelis crossota
Stelis cutucuensis
Stelis cyathiformis
Stelis cyclopetala
Stelis dactyloptera
Stelis debilis
Stelis declivis
Stelis decurva
Stelis delhierroi
Stelis delicata

Stelis dimidiata
Stelis diminuta
Stelis discoidea
Stelis discolor
Stelis distans
Stelis diversifolia
Stelis dolichantha
Stelis dracontea
Stelis ekmanii
Stelis embreei
Stelis esmeraldae
Stelis eustylis
Stelis exacta
Stelis exigua
Stelis exilis
Stelis fissurata
Stelis flexilis
Stelis flexuosa
Stelis florianii
Stelis fortunae
Stelis franciscana
Stelis furculifera
Stelis galeola
Stelis gemmulosa
Stelis glaberrima
Stelis glacensis
Stelis gladiata
Stelis glanduligera
Stelis globiflora
Stelis globulifera
Stelis glossula
Stelis glossulicles
Stelis gnoma
Stelis guianensis
Stelis gustavii
Stelis guttata
Stelis hallii
Stelis hirtella
Stelis hirtzii
Stelis hispida
Stelis humboldtina
Stelis hydroidea
Stelis hymenantha
Stelis hymenopetala
Stelis imbricans
Stelis impostor
Stelis inaequalis
Stelis intermedia
Stelis intonsa
Stelis janus
Stelis jenssenii
Stelis johnsonii
Stelis latisejala
Stelis laxa
Stelis lehmannii

Stelis leinigii
Stelis lentiginosa
Stelis lepidella
Stelis levicula
Stelis liberalis
Stelis lilliputana
Stelis limbata
Stelis listerophora
Stelis longihirta
Stelis longipetiolata
Stelis longirepens
Stelis longispicata
Stelis longissima
Stelis lorenae
Stelis luteola
Stelis macrouncata
Stelis maderoi
Stelis madsenii
Stelis maduroi
Stelis maloi
Stelis malvina
Stelis maniola
Stelis megahybos
Stelis megalcephala
Stelis meganthera
Stelis megapetala
Stelis memorialis
Stelis micacea
Stelis micragrostis
Stelis microcaulis
Stelis microchila
Stelis milagrensis
Stelis minuta
Stelis minutissima
Stelis misera
Stelis mocoana
Stelis modesta
Stelis modica
Stelis moniligera
Stelis mononeura
Stelis mundula
Stelis muscifera
Stelis muscosa
Stelis nambijae
Stelis nana
Stelis naviculigera
Stelis nepotula
Stelis nigriflora
Stelis nitens
Stelis norae
Stelis nycterina
Stelis obovata
Stelis odobenella
Stelis oestlundiana
Stelis oliganthe

Stelis omalosantha
Stelis opercularis
Stelis ophioceps
Stelis opimipetala
Stelis orbiculata
Stelis ortegae
Stelis oscitans
Stelis ovatilabia
Stelis palmeiraensis
Stelis paniculata
Stelis papulina
Stelis paradisicola
Stelis parviflora
Stelis patens
Stelis paulula
Stelis peduncularis
Stelis peliochyla
Stelis perparva
Stelis phil-jesupii
Stelis philargyrus
Stelis pilosissima
Stelis piperina
Stelis piraquarensis
Stelis pisinna
Stelis pixie
Stelis platystachya
Stelis poculifera
Stelis porpax
Stelis porphyrea
Stelis prava
Stelis procera
Stelis prolata
Stelis prorepens
Stelis psilantha
Stelis punctulata
Stelis purpurea
Stelis purpurella
Stelis pusilla
Stelis rabei
Stelis ramulosa
Stelis remifolia
Stelis repens
Stelis retroversa
Stelis rodrigoii
Stelis rotunda
Stelis rubens
Stelis rudolphiana
Stelis rufobrunnea
Stelis ruprechtiana
Stelis rutrum
Stelis sanchezii
Stelis sanctae-rosae
Stelis satyrica
Stelis scaberula
Stelis scabrida

Stelis schistochila
Stelis semperflorens
Stelis septella
Stelis serra
Stelis silverstonei
Stelis similis
Stelis sororcula
Stelis spathulata
Stelis stapedia
Stelis stevensonii
Stelis storkii
Stelis stormii
Stelis strictissima
Stelis subtilis
Stelis sumacoensis
Stelis supervirens
Stelis tachirensis
Stelis tanythrix
Stelis tarda
Stelis taxis
Stelis tenuifolia
Stelis thelephora
Stelis thermophila
Stelis thymochila
Stelis tolimensis
Stelis tortuosa
Stelis translucens
Stelis triangulabia
Stelis triangulisejala
Stelis tricardium
Stelis trichorrhachis
Stelis trichostoma
Stelis tricola
Stelis tridactyloides
Stelis triplex
Stelis tropex
Stelis tumida
Stelis tyria
Stelis umbelliformis
Stelis umbonis
Stelis uniflora
Stelis vergrandis
Stelis vesca
Stelis viamontis
Stelis violacea
Stelis viridibrunnea
Stelis viridula
Stelis vollesii
Stelis wendtii
Stelis wercklei
Stelis yanganensis
Stelis zamorae
Stellis uncinata
Stenia angustilabia
Stenia bismarckii

Stenia bohnkiana
Stenia glatzii
Stenia pastorelli
Stenia saccata
Stenia uribei
Stenia wendiae
Stenotyla lankesteriana
Stolzia christopheri
Stolzia compacta
Stolzia cupuligera
Stolzia nyassana
Stolzia repens
Stolzia williamsonii
Suarezia ecuadoriana
Sunipia andersonii
Sunipia angustipetala
Sunipia candida
Sunipia cumberlegei
Sunipia intermedia
Sunipia jainii
Sunipia kachinensis
Sunipia minor
Sunipia nigricans
Sunipia thailandica
Sunipia viridis
Sutrina bicolor
Taeniophyllum annuliferum
Taeniophyllum antennatum
Taeniophyllum biocellatum
Taeniophyllum calceolus
Taeniophyllum campanulatum
Taeniophyllum compactum
Taeniophyllum complanatum
Taeniophyllum coxii
Taeniophyllum crepidiforme
Taeniophyllum elmeri
Taeniophyllum fasciculatum
Taeniophyllum fasciola
Taeniophyllum filiforme
Taeniophyllum glandulosum
Taeniophyllum gracillimum
Taeniophyllum micranthum
Taeniophyllum minimum
Taeniophyllum montanum
Taeniophyllum muelleri
Taeniophyllum pahangense
Taeniophyllum pallidiflorum
Taeniophyllum philippinense
Taeniophyllum proliferum
Taeniophyllum pusillum
Taeniophyllum radiatum
Taeniophyllum rostratum
Taeniophyllum rubrum
Taeniophyllum rugulosum
Taeniophyllum saccatum

<i>Taeniophyllum savaiense</i>	<i>Telipogon genegeorgei</i>
<i>Taeniophyllum stella</i>	<i>Telipogon gracilipes</i>
<i>Taeniophyllum sumatranum</i>	<i>Telipogon griesbeckii</i>
<i>Taeniophyllum triangulare</i>	<i>Telipogon guacamayensis</i>
<i>Tainia laxiflora</i>	<i>Telipogon guila</i>
<i>Tainia purpureifolia</i>	<i>Telipogon gymnostele</i>
<i>Tainia vegetissima</i>	<i>Telipogon hastatus</i>
<i>Teagueia alyssana</i>	<i>Telipogon helleri</i>
<i>Teagueia cymbisepala</i>	<i>Telipogon hirtzii</i>
<i>Teagueia jostii</i>	<i>Telipogon hystrix</i>
<i>Teagueia lehmannii</i>	<i>Telipogon ibischii</i>
<i>Teagueia phasmida</i>	<i>Telipogon ionopogon</i>
<i>Teagueia portillae</i>	<i>Telipogon jimburensis</i>
<i>Teagueia sancheziae</i>	<i>Telipogon jostii</i>
<i>Teagueia zeus</i>	<i>Telipogon latifolius</i>
<i>Telipogon acicularis</i>	<i>Telipogon leila-alexandrae</i>
<i>Telipogon alegriae</i>	<i>Telipogon maduroi</i>
<i>Telipogon alexii</i>	<i>Telipogon microglossus</i>
<i>Telipogon alticola</i>	<i>Telipogon monteverdensis</i>
<i>Telipogon anacristinae</i>	<i>Telipogon morganiae</i>
<i>Telipogon andicola</i>	<i>Telipogon morii</i>
<i>Telipogon ardelianus</i>	<i>Telipogon nigropurpureus</i>
<i>Telipogon astroglossus</i>	<i>Telipogon obovatus</i>
<i>Telipogon atropurpurea</i>	<i>Telipogon ortizii</i>
<i>Telipogon aureus</i>	<i>Telipogon pampatamboensis</i>
<i>Telipogon ballesteroi</i>	<i>Telipogon parvulus</i>
<i>Telipogon barbozae</i>	<i>Telipogon penningtonii</i>
<i>Telipogon bennettii</i>	<i>Telipogon perlobatus</i>
<i>Telipogon bergoldii</i>	<i>Telipogon pfavii</i>
<i>Telipogon boliviensis</i>	<i>Telipogon piyacuensis</i>
<i>Telipogon bombiformis</i>	<i>Telipogon pogonostalis</i>
<i>Telipogon bowmanii</i>	<i>Telipogon portilloi</i>
<i>Telipogon boylei</i>	<i>Telipogon pseudobulbosus</i>
<i>Telipogon bullpenensis</i>	<i>Telipogon radiatus</i>
<i>Telipogon butchii</i>	<i>Telipogon retanarum</i>
<i>Telipogon calueri</i>	<i>Telipogon reventadorensis</i>
<i>Telipogon campbelliorum</i>	<i>Telipogon rhombipetalus</i>
<i>Telipogon campoverdei</i>	<i>Telipogon roberti</i>
<i>Telipogon caroliae</i>	<i>Telipogon sayakoe</i>
<i>Telipogon cascajalensis</i>	<i>Telipogon selbyanus</i>
<i>Telipogon christobalensis</i>	<i>Telipogon semipictus</i>
<i>Telipogon collantesii</i>	<i>Telipogon setosus</i>
<i>Telipogon cuyujensis</i>	<i>Telipogon smaragdinus</i>
<i>Telipogon dalstromii</i>	<i>Telipogon steinii</i>
<i>Telipogon davidsonii</i>	<i>Telipogon stinae</i>
<i>Telipogon dendriticus</i>	<i>Telipogon suarezii</i>
<i>Telipogon distantiflorus</i>	<i>Telipogon tessellatus</i>
<i>Telipogon ecuadorensis</i>	<i>Telipogon thomasii</i>
<i>Telipogon elcimeyae</i>	<i>Telipogon tsipiriensis</i>
<i>Telipogon embreei</i>	<i>Telipogon urceolatus</i>
<i>Telipogon erratus</i>	<i>Telipogon williamsii</i>
<i>Telipogon fortunae</i>	<i>Tetramicra malpighiarum</i>
<i>Telipogon frymirei</i>	<i>Tetramicra parviflora</i>

Figure 5.8 (facing page) *Dendrobium rigidum* has attractive, strongly contrasting flowers of white and red (Grower: Mary Gerritsen).



<i>Tetramicra schoenina</i>	<i>Trias nasuta</i>
<i>Thelasis capitata</i>	<i>Trias rosea</i>
<i>Thelasis pygmaea</i>	<i>Trias stocksii</i>
<i>Thrixspermum aberrans</i>	<i>Trias tothastes</i>
<i>Thrixspermum ancoriferum</i>	<i>Triceratorhynchus viridiflorus</i>
<i>Thrixspermum annamense</i>	<i>Trichocentrum brachyceras</i>
<i>Thrixspermum carinatifolium</i>	<i>Trichocentrum brenesii</i>
<i>Thrixspermum carnosum</i>	<i>Trichocentrum brevicaratum</i>
<i>Thrixspermum cerinum</i>	<i>Trichocentrum candidum</i>
<i>Thrixspermum congestum</i>	<i>Trichocentrum capistratum</i>
<i>Thrixspermum cootesii</i>	<i>Trichocentrum costaricense</i>
<i>Thrixspermum corneri</i>	<i>Trichocentrum cymbiglossum</i>
<i>Thrixspermum crescentiforme</i>	<i>Trichocentrum dianthum</i>
<i>Thrixspermum duplocallosum</i>	<i>Trichocentrum estrellense</i>
<i>Thrixspermum erythrolomum</i>	<i>Trichocentrum hoegei</i>
<i>Thrixspermum eximium</i>	<i>Trichocentrum morenoi</i>
<i>Thrixspermum fantasticum</i>	<i>Trichocentrum oestlundianum</i>
<i>Thrixspermum fleuryi</i>	<i>Trichocentrum popowianum</i>
<i>Thrixspermum graeffei</i>	<i>Trichocentrum recurvum</i>
<i>Thrixspermum histrix</i>	<i>Trichocentrum teaguei</i>
<i>Thrixspermum incurvicalcar</i>	<i>Trichocentrum tenuiflorum</i>
<i>Thrixspermum japonicum</i>	<i>Trichocentrum viridulum</i>
<i>Thrixspermum laurissilvaticum</i>	<i>Trichocentrum wagneri</i>
<i>Thrixspermum musciflorum</i>	<i>Trichocentrum (as Oncidium) schwambachiae</i>
<i>Thrixspermum pinocchio</i>	<i>Trichoceros antennifer</i>
<i>Thrixspermum poilanei</i>	<i>Trichoceros carinifer</i>
<i>Thrixspermum psiloglottis</i>	<i>Trichoceros cristinae</i>
<i>Thrixspermum pulchrum</i>	<i>Trichoceros dombeyi</i>
<i>Thrixspermum pumila</i>	<i>Trichoceros hajekiorum</i>
<i>Thrixspermum pygmaeum</i>	<i>Trichoceros muralis</i>
<i>Thrixspermum quinquelobum</i>	<i>Trichoceros platyceros</i>
<i>Thrixspermum recurvum</i>	<i>Trichopilia brasiliensis</i>
<i>Thrixspermum robinsonii</i>	<i>Trichosalpinx aestrochila</i>
<i>Thrixspermum roseum</i>	<i>Trichosalpinx ballatrix</i>
<i>Thrixspermum saruwatarii</i>	<i>Trichosalpinx bricenoensis</i>
<i>Thrixspermum simum</i>	<i>Trichosalpinx calceolaris</i>
<i>Thrixspermum stelioides</i>	<i>Trichosalpinx carinilabia</i>
<i>Thrixspermum xantholomum</i>	<i>Trichosalpinx cedralensis</i>
<i>Thysanoglossa jordanensis</i>	<i>Trichosalpinx ciliaris</i>
<i>Thysanoglossa organensis</i>	<i>Trichosalpinx crucilabia</i>
<i>Thysanoglossa spiritu-sanctensis</i>	<i>Trichosalpinx decorata</i>
<i>Tolumnia arizajuliana</i>	<i>Trichosalpinx dentiale</i>
<i>Tolumnia bahamensis</i>	<i>Trichosalpinx dressleri</i>
<i>Tolumnia compressicaulis</i>	<i>Trichosalpinx drosoides</i>
<i>Tolumnia guibertiana</i>	<i>Trichosalpinx ectopa</i>
<i>Tolumnia gundlachii</i>	<i>Trichosalpinx egleri</i>
<i>Tolumnia haitensis</i>	<i>Trichosalpinx escobarii</i>
<i>Tolumnia lieboldii</i>	<i>Trichosalpinx fasciculata</i>
<i>Tolumnia lucayana</i>	<i>Trichosalpinx fissa</i>
<i>Tolumnia moiriana</i>	<i>Trichosalpinx fruticosa</i>
<i>Tolumnia quadriloba</i>	<i>Trichosalpinx gentryi</i>
<i>Tolumnia scandens</i>	<i>Trichosalpinx hypocrita</i>
<i>Tolumnia usneoides</i>	<i>Trichosalpinx inaequisepala</i>
<i>Trias mollis</i>	<i>Trichosalpinx intricata</i>
<i>Trias nana</i>	<i>Trichosalpinx jimburae</i>

Trichosalpinx jostii
Trichosalpinx lamellata
Trichosalpinx lenticularis
Trichosalpinx ligulata
Trichosalpinx lilliputalis
Trichosalpinx macphersonii
Trichosalpinx membraniflora
Trichosalpinx memor
Trichosalpinx metamorpha
Trichosalpinx montana
Trichosalpinx multicuspidata
Trichosalpinx nana
Trichosalpinx navarrensii
Trichosalpinx nymphalis
Trichosalpinx pandurata
Trichosalpinx parsonsii
Trichosalpinx pergrata
Trichosalpinx pringlei
Trichosalpinx pseudolepanthes
Trichosalpinx pumila
Trichosalpinx pusilla
Trichosalpinx quitensis
Trichosalpinx ramosii
Trichosalpinx ringens
Trichosalpinx scabridula
Trichosalpinx semilunata
Trichosalpinx sijmii
Trichosalpinx silverstonei
Trichosalpinx sipapoensis
Trichosalpinx spathulata
Trichosalpinx steyermarkii
Trichosalpinx strumifera
Trichosalpinx systemmata
Trichosalpinx tantilla
Trichosalpinx tenuiflora
Trichosalpinx tenuis
Trichosalpinx teres
Trichosalpinx todziae
Trichosalpinx trachystoma
Trichosalpinx triangulipetala
Trichosalpinx trilobata
Trichosalpinx tropida
Trichosalpinx uvaria
Trichosalpinx vasquezii
Trichosalpinx webbiae
Trichosalpinx wernerii
Trichosalpinx wilhelmii
Trichosalpinx yanganensis
Trichosalpinx zunagensis
Tridactyle brevifolia
Tridactyle muriculata
Trigonidium christensonii
Trisetella abbreviata
Trisetella andreetae
Trisetella dalstroemii

Trisetella didyma
Trisetella fissidens
Trisetella gemmata
Trisetella klingeri
Trisetella lasiochila
Trisetella nodulifera
Trisetella scobina
Trisetella sororia
Trisetella tenuissima
Trisetella triaristella
Trisetella triglochin
Trisetella vitatta
Trizeuxis falcata
Warmingia zamorana
Zootrophion leonii
Zootrophion vasquezii
Zootrophion williamsii
Zygostates aderaldoana
Zygostates cornigera
Zygostates cornuta
Zygostates dasyrhiza
Zygostates densiflora
Zygostates kuhlmannii
Zygostates ligulata
Zygostates linearisepala
Zygostates morenoi
Zygostates obliqua
Zygostates octavioeisii
Zygostates ovatipetala
Zygostates papillosa
Zygostates pustulata
Zygostates riefenstahliae

Appendix II

This is a list of nearly miniature, culturally desirable species that are approximately 15 to 20 cm tall. The list also includes species that have both small and large forms that otherwise would have been included within Appendix I.

<i>Acianthera angustisepala</i>	<i>Bulbophyllum longissimum</i>
<i>Acianthera casapensis</i>	<i>Bulbophyllum makoyanum</i>
<i>Acianthera cogniauxiana</i>	<i>Bulbophyllum nitidum</i>
<i>Aerangis citrata</i>	<i>Bulbophyllum odoratissimum</i>
<i>Aerangis distincta</i>	<i>Bulbophyllum pectinatum</i>
<i>Aerangis kirkii</i>	<i>Bulbophyllum purpurascens</i>
<i>Aerangis luteoalba</i> var. <i>rhodosticta</i>	<i>Bulbophyllum scaberulum</i>
<i>Amesiella monticola</i>	<i>Bulbophyllum vaginatum</i>
<i>Anacheilium calamarium</i>	<i>Bulbophyllum weddellii</i>
<i>Angraecum arachnites</i>	<i>Camaridium aurantiacum</i> (<i>Maxillaria lankesteri</i>)
<i>Angraecum compactum</i>	<i>Camaridium pygmaeum</i> (<i>Maxillaria wercklei</i>)
<i>Angraecum distichum</i>	<i>Campanulorchis</i> (<i>Eria</i>) <i>globifera</i>
<i>Angraecum dryadum</i>	<i>Campanulorchis</i> (<i>Eria</i>) <i>thao</i>
<i>Angraecum leonis</i> (Madagascar)	<i>Campylocentrum</i> spp. various (stemless)
<i>Angraecum pectinatum</i>	<i>Cattleya aelandiae</i>
<i>Angraecum pseudofilicornu</i>	<i>Cattleya araguaensis</i>
<i>Anoectochilus</i> spp. various	<i>Cattleya bicalhoi</i>
<i>Ascocentropsis pusilla</i>	<i>Cattleya gardneri</i>
<i>Ascocentrum aurantiacum</i>	<i>Cattleya ghillanyi</i>
<i>Barkeria dorotheae</i>	<i>Cattleya jongheana</i>
<i>Barkeria naevosa</i>	<i>Cattleya lundii</i>
<i>Barkeria obovata</i>	<i>Cattleya luteola</i> (most forms)
<i>Barkeria palmeri</i>	<i>Cattleya nobilior</i>
<i>Barkeria shoemakeri</i>	<i>Cattleya praestans</i>
<i>Broughtonia domingensis</i>	<i>Cattleya pumila</i>
<i>Broughtonia lindenii</i>	<i>Cattleya walkeriana</i>
<i>Broughtonia negrilensis</i>	<i>Caucaea nubigena</i>
<i>Broughtonia ortegiesiana</i>	<i>Caucaea radiata</i>
<i>Broughtonia sanguinea</i>	<i>Ceratostylis incognita</i>
<i>Bulbophyllum ambrosia</i>	<i>Chaubardiella chasmatochila</i>
<i>Bulbophyllum antenniferum</i>	<i>Chaubardiella dalessandroi</i>
<i>Bulbophyllum arfakianum</i>	<i>Chaubardiella pubescens</i>
<i>Bulbophyllum auratum</i>	<i>Chaubardiella subquadrata</i>
<i>Bulbophyllum biflorum</i>	<i>Chaubardiella tigrina</i>
<i>Bulbophyllum capillipes</i>	<i>Cischweinfia colombiana</i>
<i>Bulbophyllum dayanum</i>	<i>Cischweinfia dasyandra</i>
<i>Bulbophyllum ecornutum</i>	<i>Cischweinfia donrafae</i>
<i>Bulbophyllum falcatum</i>	<i>Cischweinfia horichii</i>
<i>Bulbophyllum fascinator</i>	<i>Cischweinfia jarae</i>
<i>Bulbophyllum fritillariiflorum</i>	<i>Cischweinfia parva</i>
<i>Bulbophyllum gracillimum</i>	<i>Cischweinfia platychila</i>
<i>Bulbophyllum hians</i>	<i>Cischweinfia popowiana</i>
<i>Bulbophyllum hirtum</i>	<i>Cischweinfia pusilla</i>
<i>Bulbophyllum laxiflorum</i>	<i>Cischweinfia pygmaea</i>
<i>Bulbophyllum laxiflorum</i>	<i>Cischweinfia rostrata</i>
<i>Bulbophyllum lilacinum</i>	<i>Coelogyne fimbriata</i>
<i>Bulbophyllum lindleyanum</i>	<i>Coelogyne occultata</i>

<i>Coelogyne ovalis</i>	<i>Dendrophyllax funalis</i>
<i>Comparettia falcata</i>	<i>Dendrophyllax lindenii</i>
<i>Comparettia ignea</i>	<i>Dendrophyllax sallei</i>
<i>Comparettia macroplectron</i>	<i>Dichaea</i> spp. various
<i>Comparettia splendens</i>	<i>Domingoa nodosa</i>
<i>Comparettia (Scelochilus) latipetala</i>	<i>Domingoa purpurea</i>
<i>Comparettia (Scelochilus) mirthae</i>	<i>Dracula benedictii</i>
<i>Comparettia (Scelochilus) ottonis</i>	<i>Dracula berthae</i>
<i>Comparettia (Scelochilus) hirtzii</i>	<i>Dracula brangeri</i>
<i>Cryptocentrum latifolium</i>	<i>Dracula cutis-bufonis</i>
<i>Cymbidium goeringii</i>	<i>Dracula decussata</i>
<i>Cymbidium lancifolium</i>	<i>Dracula fuligifera</i>
<i>Cymbidium tigrinum</i>	<i>Dracula inaequalis</i>
<i>Cyrtorchilum rhodoneurum</i>	<i>Dracula lemurella</i>
<i>Dendrobium aberrans</i>	<i>Dracula nycterina</i>
<i>Dendrobium aemulum</i> forms	<i>Dracula pusilla</i>
<i>Dendrobium aurantiroseum</i>	<i>Dracula rezeckiana</i>
<i>Dendrobium brassii</i>	<i>Dresslerella stellaris</i>
<i>Dendrobium canaliculatum</i>	<i>Dyakia hendersoniana</i>
<i>Dendrobium capillipes</i> forms	<i>Epidendrum fimbriatum</i>
<i>Dendrobium christyanum</i> forms	<i>Epidendrum jejunum</i>
<i>Dendrobium concinnum</i>	<i>Epidendrum laterale</i>
<i>Dendrobium dichaeoides</i> forms	<i>Epidendrum longicaule</i>
<i>Dendrobium dickasonii</i>	<i>Epidendrum magnoliae</i>
<i>Dendrobium eriiflorum</i>	<i>Epidendrum megalospathum</i>
<i>Dendrobium fuerstenbergianum</i>	<i>Epidendrum milanae</i>
<i>Dendrobium hellwigianum</i>	<i>Epidendrum physinga</i>
<i>Dendrobium kingianum</i> var. <i>pulcherimum</i>	<i>Epidendrum quisayanum</i>
<i>Dendrobium laevifolium</i>	<i>Epidendrum sophronitoides</i>
<i>Dendrobium lamellatum</i> (most forms)	<i>Epidendrum whittenii</i>
<i>Dendrobium lamyiae</i>	<i>Gomesa bifolia</i>
<i>Dendrobium lindleyi</i>	<i>Gomesa cilata</i> (<i>Oncidium barbatum</i>)
<i>Dendrobium loddigesii</i>	<i>Gomesa concolor</i>
<i>Dendrobium lueckelianum</i>	<i>Gomesa croesus</i>
<i>Dendrobium malvicolor</i>	<i>Gomesa dasytyle</i>
<i>Dendrobium monophyllum</i>	<i>Gomesa fuscopetala</i> (<i>Oncidium fuscopetalum</i>)
<i>Dendrobium nebulare</i>	<i>Gomesa gomezoides</i> (<i>Rodriguezella gomezoides</i>)
<i>Dendrobium nothofagicola</i>	<i>Gomesa handroi</i> (<i>Rodriguezella handroi</i>)
<i>Dendrobium pentapterum</i>	<i>Gomesa macropetala</i> (<i>Oncidium macropetalum</i>)
<i>Dendrobium petiolatum</i>	<i>Gomesa micropogon</i>
<i>Dendrobium prasinum</i>	<i>Gomesa pulchella</i> (<i>Baptistonia pulchella</i>)
<i>Dendrobium senile</i>	<i>Gomesa uniflora</i> (<i>Oncidium uniflorum</i>)
<i>Dendrobium striolatum</i>	<i>Gomesa viperina</i> (<i>Oncidium viperinum</i>)
<i>Dendrobium unicum</i>	<i>Gomesa (Baptistonia) kautskyi</i>
<i>Dendrobium vexillarius</i> varieties	<i>Gomesa (Baptistonia) pubes</i>
<i>Dendrobium violaceum</i>	<i>Gomesa (Baptistonia) truncata</i>
<i>Dendrobium wassellii</i>	<i>Gomesa (Ornithophora) radicans</i>
<i>Dendrobium alaticaulinum</i>	<i>Goodyera</i> spp. various
<i>Dendrobium (Cadetia) taylorii</i>	<i>Grandiphyllum auricula</i> (<i>Oncidium harrisonianum</i>)
<i>Dendrobium (Diplocaulobium) aratiferum</i>	<i>Holcoglossum lingulatum</i>
<i>Dendrobium (Epigeneium) cymbidioides</i>	<i>Holcoglossum quasipinifolium</i>
<i>Dendrobium (Epigeneium) stella-silvae</i>	<i>Holcoglossum sinicum</i>
<i>Dendrochilum cootesii</i>	<i>Kefersteinia costaricensis</i>
<i>Dendrochilum irigense</i>	<i>Kefersteinia elegans</i>
<i>Dendrochilum uncatum</i> forms	<i>Kefersteinia mystacina</i>

<i>Kefersteinia parvilabris</i>	<i>Masdevallia manoloi</i>
<i>Kefersteinia perlonga</i>	<i>Masdevallia mezae</i>
<i>Kefersteinia pulchella</i>	<i>Masdevallia murex</i>
<i>Kegeliella houtteana</i>	<i>Masdevallia norops</i>
<i>Kegeliella kupperi</i>	<i>Masdevallia notosiberica</i>
<i>Laelia furfuracea</i>	<i>Masdevallia odontocera</i>
<i>Leochilus oncidiioides</i> (most forms)	<i>Masdevallia pachyura</i>
<i>Leochilus scriptus</i>	<i>Masdevallia peristeria</i>
<i>Lepanthes cascajalensis</i>	<i>Masdevallia pinocchio</i>
<i>Lepanthes fiskei</i>	<i>Masdevallia porphyrea</i>
<i>Lepanthes gargoyla</i>	<i>Masdevallia pulcherrima</i>
<i>Lepanthes manabina</i>	<i>Masdevallia racemosa</i>
<i>Lepanthes obtusa</i>	<i>Masdevallia reichenbachiana</i>
<i>Lepanthes oxypetala</i>	<i>Masdevallia rhinophora</i>
<i>Lepanthes pecunialis</i>	<i>Masdevallia rimarima-alba</i>
<i>Lepanthes rutrum</i>	<i>Masdevallia rolfeana</i>
<i>Leptotes bicolor</i>	<i>Masdevallia rosea</i>
<i>Leptotes pohlitinocoi</i>	<i>Masdevallia sanctae-inesae</i>
<i>Ludisia discolor</i>	<i>Masdevallia scandens</i>
<i>Macodes</i> spp. various	<i>Masdevallia schmidt-mummii</i>
<i>Macradenia brassavolae</i> (most forms)	<i>Masdevallia schroederiana</i>
<i>Macradenia lutescens</i>	<i>Masdevallia selenites</i>
<i>Malleola baliensis</i>	<i>Masdevallia staaliana</i>
<i>Malleola palustris</i>	<i>Masdevallia stenorhynchos</i>
<i>Masdevallia aenigma</i>	<i>Masdevallia towarensis</i>
<i>Masdevallia amabilis</i>	<i>Masdevallia tridens</i>
<i>Masdevallia antonii</i>	<i>Masdevallia uniflora</i>
<i>Masdevallia barleana</i>	<i>Masdevallia virgo-cuencae</i>
<i>Masdevallia bicornis</i>	<i>Masdevallia wurdakii</i>
<i>Masdevallia buccinator</i>	<i>Masdevallia yungasensis</i>
<i>Masdevallia calura</i>	<i>Maxillaria reichenheimiana</i>
<i>Masdevallia caudivolvula</i>	<i>Maxillariella variabilis</i>
<i>Masdevallia chaparensis</i>	<i>Mediocalcar agathodaemonis</i>
<i>Masdevallia chuspipatae</i>	<i>Mediocalcar bifolium</i>
<i>Masdevallia cinnomomea</i>	<i>Mediocalcar versteegii</i>
<i>Masdevallia coriacea</i>	<i>Microcoelia exilis</i>
<i>Masdevallia dalstroemii</i>	<i>Microcoelia stolzii</i>
<i>Masdevallia datura</i>	<i>Microterangis hariatiana</i>
<i>Masdevallia davisii</i>	<i>Mormolyca gracilipes</i>
<i>Masdevallia discoidea</i>	<i>Mormolyca peruviana</i>
<i>Masdevallia dynastes</i>	<i>Mormolyca schweinfurthiana</i>
<i>Masdevallia elegans</i>	<i>Mycaranthes (Eria) pannea</i>
<i>Masdevallia excelsior</i>	<i>Myoxanthus hystrix</i>
<i>Masdevallia figueroae</i>	<i>Myoxanthus hystrix</i>
<i>Masdevallia fulvescens</i>	<i>Mystacidium capense</i>
<i>Masdevallia gilbertoi</i>	<i>Neocogniauxia hexaptera</i>
<i>Masdevallia harlequina</i>	<i>Neocogniauxia monophylla</i>
<i>Masdevallia hieroglyphica</i>	<i>Neofinetia falcata</i> forms
<i>Masdevallia hymenantha</i>	<i>Nephelaphyllum pulchrum</i>
<i>Masdevallia infracta</i>	<i>Notylia barkeri</i>
<i>Masdevallia ingridiana</i>	<i>Omoea philippinensis</i>
<i>Masdevallia karineae</i>	<i>Oncidium cheirophorum</i>
<i>Masdevallia laucheanae</i>	<i>Oncidium gheisbreghtianum</i>
<i>Masdevallia lehmannii</i>	<i>Oncidium posadaroides (Sigmatostalix posadarum)</i>
<i>Masdevallia leptoura</i>	<i>Oncidium wallisioides (Sigmatostalix wallisii)</i>

<i>Oncidium (Cochlioda) rosea</i>	<i>Podochilus muricatus</i>
<i>Oncidium (Sigmatostalix) aristuliferum</i>	<i>Polystachya bella</i>
<i>Oncidium (Sigmatostalix) huebneri</i>	<i>Polystachya caespitifica</i> ssp. <i>latilabris</i>
<i>Oncidium (Sigmatostalix) marinii</i>	<i>Polystachya fallax</i>
<i>Oncidium (Sigmatostalix) minax</i>	<i>Polystachya lawrenceana</i>
<i>Oncidium (Sigmatostalix) renatoi</i>	<i>Polystachya maculata</i>
<i>Oncidium (Sigmatostalix) sergii</i>	<i>Polystachya minima</i>
<i>Oncidium (Solenidiopsis) tigroides</i>	<i>Polystachya ottoniana</i>
<i>Oncidium (Sigmatostalix) amazonicum</i>	<i>Polystachya perrieri</i>
<i>Oncidium (Sigmatostalix) picturatissimum</i>	<i>Polystachya pubescens</i>
<i>Ornithocephalus dalstroemii</i>	<i>Polystachya spatella</i>
<i>Ornithocephalus ecuadorensis</i>	<i>Polystachya subdiphylla</i>
<i>Ornithocephalus escobarianus</i>	<i>Polystachya valentina</i>
<i>Ornithocephalus hoppii</i>	<i>Prosthechea abbreviata</i>
<i>Ornithocephalus tsubotae</i>	<i>Prosthechea tripunctata</i>
<i>Ornithocephalus urceilabris</i>	<i>Restrepia brachypus</i>
<i>Pabstiella tripterantha</i>	<i>Restrepia citrina</i>
<i>Panisea uniflora</i>	<i>Restrepia echo</i>
<i>Paphinia neudeckeri</i>	<i>Restrepia ephippium</i>
<i>Paphinia subclausa</i>	<i>Restrepia flosculata</i>
<i>Paphiopedilum armeniacum</i>	<i>Restrepia limbata</i>
<i>Paphiopedilum bellatulum</i>	<i>Restrepia mendozae</i>
<i>Paphiopedilum canhii</i>	<i>Restrepia nittiorhyncha</i>
<i>Paphiopedilum concolor</i> (some forms)	<i>Restrepia pelyx</i>
<i>Paphiopedilum delantii</i>	<i>Restrepia sanguinea</i>
<i>Paphiopedilum godefroyae</i>	<i>Restrepia trichoglossa</i>
<i>Paphiopedilum helenae</i>	<i>Rhynchostele cervantesii</i>
<i>Paphiopedilum micranthum</i>	<i>Rhynchostele ehrenbergii</i>
<i>Paphiopedilum niveum</i>	<i>Rhynchostele pygmaea</i>
<i>Paphiopedilum thaianum</i>	<i>Rhynchostele rossii</i> forms
<i>Parapteroceras escritorii</i>	<i>Rhynchostele stellata</i>
<i>Parapteroceras odoratissimum</i>	<i>Rodriguezia candida</i>
<i>Parapteroceras quisumbingii</i>	<i>Rodriguezia lanceolata</i>
<i>Phalaenopsis deliciosa</i>	<i>Rodriguezia leeana</i>
<i>Phalaenopsis gibbosa</i>	<i>Rodriguezia refracta</i>
<i>Phalaenopsis lobbii</i>	<i>Rodriguezia satipoana</i>
<i>Phalaenopsis maculata</i>	<i>Rodriguezia venusta</i>
<i>Phalaenopsis minus</i>	<i>Sarcochilus borealis</i>
<i>Phalaenopsis parishii</i>	<i>Sarcochilus falcatus</i>
<i>Phalaenopsis taenialis</i>	<i>Sarcochilus fitzgeraldii</i>
<i>Phloeophila pelicaniceps</i>	<i>Sarcochilus hirticalcar</i>
<i>Pinalia (Eria) amica</i>	<i>Sarcochilus olivaceus</i>
<i>Pleione humilis</i>	<i>Sarcochilus parviflorus</i>
<i>Pleurothallis anthrax</i>	<i>Sarcochilus weinthalii</i>
<i>Pleurothallis condorensis</i>	<i>Scaphosepalum beluosum</i>
<i>Pleurothallis dilemma</i>	<i>Scaphosepalum breve</i>
<i>Pleurothallis eumecocaulon</i>	<i>Scaphosepalum fimbriatum</i>
<i>Pleurothallis odobeniceps</i>	<i>Scaphosepalum gibberosum</i>
<i>Pleurothallis onagriceps</i>	<i>Scaphosepalum lima</i>
<i>Pleurothallis penelops</i>	<i>Scaphosepalum verrucosum</i>
<i>Pleurothallis praecipua</i>	<i>Schoenorchis gemmata</i>
<i>Pleurothallis punctulata</i>	<i>Schoenorchis micrantha</i>
<i>Pleurothallis scurrula</i>	<i>Schoenorchis paniculata</i>
<i>Pleurothallis talpinaria</i>	<i>Sievekingia fimbriata</i>
<i>Podangis dactyloceras</i>	<i>Specklinia endotrachys</i>



Stelis flexuosa
Stelis immersa
Stelis quadrifida
Stelis many spp.
Stenia guttata
Stenia pallida
Stenia vasquezii
Ticoglossum oerstedii
Tolumnia guttata
Tolumnia prionochila
Tolumnia pulchella
Tolumnia triquetra
Trias disciflora
Trichocentrum aurisasinorum
Trichocentrum fuscum
Trichocentrum panduratum
Trichocentrum stramineum
Trichoglottis pusilla
Tuberolabium kotoense
Tuberolabium phillipsii
Tuberolabium rhopalorrhachis
Warmingia eugenii
Zelenkoa onusta
Zootrophion endresianum
Zootrophion hypodiscus
Zootrophion oblongifolium
Zootrophion vulturiceps
Zygostates grandiflora

Figure 5.9 (facing page) The elegant, yellowish green and white bloom of *Polystachya heckmanniana* (Grower: Cindy Hill).

Appendix III

Orchid Sources

This list includes a range of specialist orchid nurseries from across the world. In certain areas, the import and export of orchids may be restricted, and growers should familiarise themselves with the regulations of both their own country and the source country. In most instances, nurseries themselves will be able to adequately advise growers about any applicable export regulations.

Australia

Burleigh Park Orchids

54 Hammond Way
Townsville, Queensland 4815
Australia
Tel: +61 (7) 4774 0008
Email: ianbpon@speciesorchids.com
Web: www.speciesorchids.com

Dark Star Orchids

PO Box 114 Bowraville
New South Wales 2449
Australia
Tel: +61 (2) 6564 4088
Fax: +61 (2) 6564 4088
Email: info@darkstarorchids.com.au
Web: www.darkstarorchids.com.au

Easy Orchids

3 Sussex Street
Woodburn, New South Wales 2472
Australia
Tel: +61 (2) 6682 2635
Fax: +61 (2) 6682 2605
Email: sales@easyorchids.com
Web: www.easyorchids.com

Hills District Orchids

183 Windsor Road
Northmead, New South Wales 2152
Australia
Tel: +61 (2) 9674 4720
Email: david@hillsdistrictorchids.com
Web: www.hillsdistrictorchids.com

Mount Beenak Orchids

27 Hacketts Creek Road
Three Bridges, Victoria 3797
Australia
Email: clivehalls@bigpond.com
Web: www.mtbeenakorchids.com.au

Orchid Species Plus

405 Main St.
Kingston, Victoria 3364
Australia
Tel: +61 (3) 5345 6387
Fax: +61 (3) 5345 6303
Web: www.orchidspeciesplus.com.au

Robertson Orchids

262–290 Blackall Range Road
West Woombye, Queensland 4559
Australia
Tel: +61 (7) 5442 1913
Email: info@robertsonorchids.com.au
Web: www.robertsonorchids.com.au

Royale Orchids

1360 Brieses Road
Peats Ridge, New South Wales 2250
Australia
Tel: +61 (2) 4375 1199
Fax: +61 (2) 4375 1205
Web: www.royaleorchids.com

Stockers' Nursery

PO Box 188
Malanda, Queensland 4885
Australia
Tel: +61 (7) 4096 5362
Email: gstocker@internethnorth.com.au
Web: www.orchidspng.com

Woolf Orchid Culture

PO Box 6018
Clifford Gardens
Queensland 4350
Australia
Tel: +61 (7) 46301788
Fax: +61 (7) 46302762
Email: john@woolforchidculture.com
Web: www.woolforchidculture.com

Rolin Farms

124–190 Rutters Road
Elimbah, Queensland 4516
Australia
Tel: +61 (7) 54974253
Fax: +61 (7) 5497 4671
Email: trosty40@bigpond.com
Web: www.rolinfarms.com.au

Belgium

Akerne Orchids

Larrsebeekdreef 4, B-2900
Schoten
Belgium
Tel: +32 (3) 651 40 36
Fax: +32 (3) 653 06 76
Email: info@akerne-orchids.com
Web: www.akerne-orchids.com

Brazil

Floralia Orquidarios Reunidos

Estrada da Floralia, 592 24.140–216
Niteroi-RJ
Brazil
Tel: +55 (21) 2627 7733
Fax: +55 (21) 2627 7802
Email: florbra@attglobal.net
Web: www.floralia.com.br

AWZ Orquideas

R. José Luis Gabeira, 108
Barro Vermelho, CEP 29.055–470
Vitória – ES
Brazil
Email: awz@awzorchids.com.br
Web: www.awzorchids.com.br

Canada

Marsh Hollow Orchids

1129 Cream St
Fenwick, Ontario L0S 1C0
Canada
Tel: +1 (905) 892 4187
Email: mferrusi@sympatico.ca
Web: www.marshhollow.com

Orchids in our Tropics

15 Wilmac Court
Gormley, Ontario L0H 1G0
Canada
Tel: +1 (905) 727 3319
Email: ourtropics@sympatico.ca
Web: www.orchidsinourtropics.com

Paramount Orchids

1060–101 St. SW
Calgary, Alberta T3H 3Z5
Canada
Tel: +1 (403) 686 7021
Fax: +1 (403) 686 6270
Email: info@paramountorchids.com
Web: www.paramountorchids.com

Columbia

Orquídeas del Valle

Cali, Colombia
Email: andreaniessen@orquivalle.com
Web: www.orquivalle.com

Denmark

Hans Christiansen Orchidegartneriet

Hillerodvejen 25
DK-Fredensborg
Denmark
Tel: +45 (4848) 0471
Email: orchidegartneriet@christiansen.mail.dk
Web: www.orchidegartneriet.dk

KJ Orchids

Lykkegårdsvej 365
DK 8472 Sporup
Denmark
Tel: +45 (86) 96 86 00
Fax: +45 (86) 28 66 87
Email: kj@kj-orchids.com
Web: www.kj-orchids.com

Ecuador

Ecuagenera

PO Box 01 01 1110
Cuenca
Ecuador
Tel: +593 (42) 738073
Email: sales@ecuagenera.com
Web: www.ecuagenera.com

Orquideas de los Andes

PO Box 01 01 798
Cuenca
Ecuador
Tel: +593 (72) 811801
Email: organdes@etapanet.net
Web: www.orchidmall.com/deLosAndes

France

Buscal Orchidées

26 Rue de Goarem Goz
29470 Plougastel-Daoulas
France
Tel: +33 (6) 81 11 37 95
Web: www.buscalorchidees.com

Les Orchidées de Michel Vacherot

CD7 83520 Roquebrune sur Argens
France
Tel: +33 (494) 45 48 59
Web: www.orchidees-vacherot.com

Germany

Befort Gartenbau Freising

Asamstrasse 21
85356 Freising
Germany
Tel: +49 (8161) 232 850
Email: andreas.befort@weihenstephan.org
Web: www.befort-gartenbau.de

Junginger Orchideen

Reuteweg 18
D-72229 Rohrdorf
Germany
Tel: +49 (7452) 4622
Email: berndjunginger@t-online.de
Web: www.junginger-orchideen.de

M&M Orchideen

Kaeppelesweg 11
97539 Wonfurt-Steinfeld
Germany
Tel: +49 (9521) 94890
Email: info@m-m-orchid.com
Web: www.m-m-orchid.com

N. Popow Orchideen

Sandkämperstrasse 1
38442 Wolfsburg
Germany
Tel: +49 (5362) 3314
Fax: +49 (5362) 639 72
Email: bpopow@t-online.de
Web: www.popow-orchids.com

Orchideen Kopf

Hindenburgstrasse 15
94469 Deggendorf
Germany
Tel: +49 (991) 37151 14
Fax: +49 (991) 343 223
Email: mail@kopf-orchideen.de
Web: www.kopf-orchideen.de

Orchideen Lucke

Bergschenweg 6
47506 Neukirchen-Vluyn
Tel: +49 (2845) 28612
Email: kontakt@orchideen-lucke.de
Web: www.orchideen-lucke.de

Orchideen Seidel GbR

Hauptstrasse 119 a
08115 Lichtentanne
Germany
Tel: +49 (375) 7929542
Fax: +49 (375) 7883587
Email: info@orchideen-seidel.de
Web: www.orchideen-seidel.de

Orchideen-Garten Joachim Karge

Bahnhofstrasse 24
21368 Dahlenburg
Germany
Tel: +49 (5851) 266
Fax: +49 (5851) 264
Web: www.karge-orchideen.de

Orchids & More

Orchideenzucht
Mayerbacherstra 94
85737 Ismaning
Germany
Tel: +49 (8985) 07583
Fax: +49 (8985) 07513
Email: orchideen@aol.com
Web: www.orchideen.com

Röllke Orchideen Gbr

Floessweg 11D - 33758 Schloss Holte
Stukenbrock
Germany
Tel: +49 (5207) 920539
Email: info@roellke-orchideen.de
Web: www.roellke-orchideen.de

Schwerter Orchideenzucht

58239 Schwerte/Ruhr
Bergstr. 8
Germany
Tel: +49 (2304) 9425013
Email: info@schwerter-orchideenzucht.de
Web: www.schwerter-orchideenzucht.de

Wilhelm Hennis Orchideen

Große Venedig 4
D-31134 Hildesheim
Germany
Tel: +49 (5121) 35677
Fax: +49 (5121) 38320
Web: www.hennis-orchideen.de

Ireland

Species Specific

Web: www.species-specific.com

Italy

Azienda Agricola Nardotto Capello

C.so Repubblica 266
18033 Camporosso
Italy
Tel: +39 184 25 46 49
Email: info@nardottoecapello.it
Web: www.nardottoecapello.it/azienda.asp

Figure 5.10 (facing page) The triangular shaped flower of *Dracula lotax* has an almost comical appearance (Grower: John Leathers).



Malaysia

NT Orchid Nursery

No. 186 Ladang Sungai Batu I
Buhang
08100 Bedong
Kedah Darul Aman
West Malaysia
Tel: +60 (4) 442 6720
Email: info@ntorchids.com

Ooi Leng Sun Orchids

873 Sungai Dua 13800 Butterworth
Penang
Malaysia
Tel: +60 (4) 3563 688
Email: sales@aaorchids.com
Web: www.aaorchids.com

The Netherlands

Botanische Orchideeën

Coendersberglaan 46
5709 MA Helmond
Nederland
Tel: +31 (492) 592 271
Fax: +31 (848) 330 915
Email: hterborch@botorch.com
Web: www.botorch.com

Orchideeën Wubben

Tolakkerweg 162
3739 JT Hollandsche Rading
Nederland
Tel: +31 (35) 577 1222
Fax: +31 (35) 577 2103
Email: info@orchidwubben.com
Web: www.orchidwubben.com

Reinhart Orchideeën

Westerveen 16 Harenermolen
9751 HW Haren GR
Nederland
Tel: +31 (50) 406 2455
Email: info@reinhartorchideeen.nl
Web: www.reinhartorchideeen.nl

New Zealand

L&R Orchids

178 Dominion Road
Tuakau
New Zealand
Tel: +64 9 236 8392
Fax: +64 (9) 236 9355
Email: lorchids@xtra.co.nz
Web: www.lorchids.co.nz

Philippines

Purificacion Orchids

Tel: +63 (2) 928 4831
Fax: +63 (2) 936 8756
Email: purificacion_orchids@yahoo.com
Web: www.purificacionorchids.com

Peru

Peruflora

Email: contact@peruflora.net

Switzerland

RA Orchid

Untermattstrasse 27 Auen
8370 Sirmach TG
Switzerland
Email: RA-Orchid@gmx.ch

Taiwan

Charming Agriculture Co. Ltd.

No. 39 Shingihong Road
Madou Township
Tainan County 721, Taiwan
Tel: +886 6 5703668
Fax: +886 6 5703669
Email: aw.phal@msa.hinet.net

Hsiang Yu Orchids

No. 17, Lane 186
Chungshang Road, Chunghe Village
Dadu District, Taichung City
432, Taiwan
Tel: 888 426935596
Email: hyg26935596@yahoo.com.tw

Jia-Ho Orchids Nursery

No. 1-28 Tanliao Ln.
Mingjian Township
Nantou County 551, Taiwan
Tel: +886 910 581063
Email: jiaho.w1688@msa.hinet.net
Web: www.jiaho-orchids.url.tw

Ten Shin Gardens

No. 101-1 Shangguan Li
Yuanli Township
Miaoli County, Taiwan
Tel: +886 377 41465 / 0910 157470 (mobile)
Email: info@tenshinorchids.com
Web: www.tenshinorchids.com

Tung Chin Orchid Nursery

No 9 Alley 45
Lane 367, Lan-Chang Road
Nanzih District
Kaohsiung Taiwan
Email: tungchin2@gmail.com

Thailand

Janyaporn Thawarnsatitsakul

130 Moo.6 Tambol Pah-Toom
Phrao District, Chiangmai
Thailand, 50190
Tel: +66 (81) 7792497
Email: katai2497@gmail.com

Sakdi Sri & Daughters Nursery

35 Sucharit 1 Lane
Rama V. Street
Dusit, Bangkok
Thailand 10300
Tel: +66 2241 1431
Email: sakdisri@truemail.co.th

United Kingdom

Chantelle Orchids

Meadow View, 8 Hob Lane
Burton Green, Warwickshire CV81QB
United Kingdom
Tel: 44 2477 040337
Email: chantelle.shih@chantelle-orchids.com
Web: www.chantelle-orchids.com

Equatorial Plant Company

The Dovecote, Newgate
Barnard Castle, DL12 8NW
United Kingdom
Tel: +44 (1833) 908127
Email: equatorialplants@teedaleonline.uk
Web: www.equatorialplants.com

Grange Nurseries

North View Road Westgate Hill
Bradford, West Yorkshire BD4 6NS
United Kingdom
Tel: +44 (1274) 682 120

Plested Orchids

38 Florence Road
College Town, Sandhurst, Berkshire GU47 0QD
United Kingdom
Tel: +44 (1276) 32947
Email: plestedorchids@aol.com

Royden Orchids

Perks Lane
Prestwood, Bucks HP16 0JD
United Kingdom
Tel: +44 (1494) 863 224
Email: orchids@royden99.freemove.co.uk

United States

Andy's Orchids

734 Ocean View Avenue
Encinitas, CA 92024
USA
Tel: +1 (888) 514 2639
Fax: +1 (888) 632 8991
Email: info@AndysOrchids.com
Web: www.AndysOrchids.com

Botanica Ltd.

3112 S. 3rd St. W
Missoula, MT 59604
USA
Email: billn@bresnan.net
Web: www.botanicaltd.com

Cal Orchid

1251 Orchid Drive
Santa Barbara, CA 93111
USA
Tel: +1 (805) 967 1312
Fax: +1 (805) 967 6882
Email: calorchid@cox.net
Web: www.calorchid.com

Clackamas Orchids

7920 S Zimmerman Road
Canby, Oregon 97013
USA
Tel: +1 (503) 651 3438
Email: orchids@clackamas-orchids.com
Web: www.clackamas-orchids.com

Colombian Orchid Imports

538 Waller St.
San Francisco, CA 94117
USA
Email: gary@colombianorchids.com
Web: www.colombianorchidimports.com

D&M Crawford

3509 Mayer Drive
Murrysville, PA 15668
USA
Tel: +1 (724) 327 2966
Email: dmcrawford@webtc.net

Gold Country Orchids

390 Big Ben Road
Lincoln, CA 95628
USA
Fax: +1 (916) 645 7076
Email: gcorchids@aol.com
Web: www.goldcountryorchids.com

Golden Gate Orchids

225 Velasco Avenue
San Francisco, CA 94314
USA
Tel: +1 (415) 467 3737
Fax: +1 (415) 566 8636
Email: tperlite@sbeglobal.net

Haiku Maui Orchids

Tel: +1 (808) 573 1130
Email: info@haikumaiorchids.com
Web: www.haikumaiorchids.com

Hanging Gardens

210 27th Ave #5
San Francisco, CA 94044
USA
Tel: +1 (415) 305 8355
Email: hgardens@earthlink.net
Web: www.hanginggardens.org

Hawk Hill Orchids

Pacifica, CA
USA
Email: gary@hawkhillorchids.com
Web: www.hawkhillorchids.com

H&R Nurseries, Inc

41–240 Hihimanu Street
Waimanalo, HI
Tel: +1 (808) 259 9626
Fax: +1 (808) 259 5422
Email: orders@hrnurseries.com
Web: www.hrnurseries.com

Hillsview Gardens

PO Box 1076, Mulino, OR 97042
USA
Tel: +1 (503) 658 5296
Fax: +1 (503) 658 7743
Email: orchids@hillsviewgardens.com
Web: www.hillsviewgardens.com

J & L Orchids

20 Sherwood Road
Easton, CT 06612
USA
Tel: +1 (203) 261 3772
Fax: +1 (203) 261 8730
Email: jlorchid@snet.net
Web: www.jlorchids.com

Lynn O'Shaughnessy

1721 Peavy Road
Howell, MI 48843
USA
Tel: +1 (517) 546 8303
Fax: +1 (517) 546 8306
Email: freespirit@pleurothallids.com
Web: www.pleurothallids.com

Marni Turkel Orchid Sales

2080 Liano Road 1B
Santa Rosa, CA 95407
USA
Tel: +1 (800) 955 9553
Email: marni@marniturkel.com
Web: www.marniturkel.com

Miranda Orchids

4763 Polk City Road
Haines City, FL 33844
Tel/Fax: +1 (863) 422 9398
Web: mirandaorchids.com

Mountain Orchids

1658 Route 100N
Ludlow, VT 05149
USA
Tel: +1 (802) 228 8506
Fax: +1 (802) 228 8506
Email: info@mountainorchids.com
Web: www.mountainorchids.com

Napa Valley Orchids

Napa, California
Tel: +1 (707) 255 8266
Email: napavalleyorchids@gmail.com
Web: www.napavalleyorchids.com

New World Orchids

19220 Sanborn
Manchester, MI 48158
USA
Tel: +1 (734) 428 8182
Fax: +1 (734) 428 0681
Email: NewWOrchid@aol.com
Web: www.newworldorchids.com

Oak Hill Gardens

Dundee, IL 60118–0025
Tel: +1 (847) 428 8500
Fax: +1 (847) 428 8527
Email: oakhillgardens@sprintmail.com
Web: www.oakhillgardens.com

Olympic Orchids

21115 Elberta Rd. #1
Lynwood, WA 98036
Tel: +1 (206) 229 7919
Email: orchids@olympicorchids.com
Web: www.orchidfinders.com

Orchids by Hauserman

2N134 Addison Road
Villa Park, IL 60181–1191
USA
Tel: +1 (630) 543 6855
Fax: +1 (630) 543 9842
Email: orchidorders@orchidsbyhausermann.com
Web: www.orchidsbyhausermann.com

Figure 5.11 (facing page) The intriguingly shaped and wonderfully speckled flower of *Porroglossum gerritsenianum* (Grower: Ron Parsons).



Orchids for the People

1975 Blake Road
McKinleyville, CA
Tel: +1 (707) 840 0223

Parkside Orchid Nursery

2503 Mountainview Drive
Ottsville, PA 18942
USA
Tel: +1 (610) 847 8039
Fax: +1 (610) 847 1211
Email: parkside@ptd.net
Web: www.parksideorchids.com

Santa Barbara Orchid Estate

1250 Orchid Dr
Santa Barbara, CA 93111
Tel: +1 (805) 967 1284
Fax: +1 (805) 683 3405
Email: sboc@sborchid.com
Web: www.sborchid.com

SLO Gardens

965 Branch Mill Road
Arroyo Grande, CA 93434
USA
Tel: +1 (805) 489 3319
Email: slogardens@thegrid.net

Tropical Orchid Farm

P.O. Box 170
Haiku, Maui, HI 96708
Tel: +1 (866) 572 8569
Fax: +1 (808) 572 8917
Web: www.tropicalorchidfarm.com

Appendix IV

Sources of Supplies and Additional Information

This list includes valuable orchid references, as well as details of companies that specialise in providing products or services of value to the orchid grower.

Books (and Chapters) on Orchid Viruses, Fungal and Bacterial Diseases

Baker, ML and Baker, CO. 2006. *Orchid Species Culture. Oncidium/ Odontoglossum Alliance*. Appendix A. Timber Press, Portland, OR, United States.

Banks, DP. 2001. *Growing Orchids*. Kangaroo Press, Roseville, NSW, Australia.

Cullina, W. 2004. *Understanding Orchids. An uncomplicated guide to growing the world's most exotic plants*. Houghton Mifflin Company, New York, NY, United States.

Lawson, RH and Brannigan, M. 1986. *Virus diseases of orchids*. Pages 2–49 in *Handbook on Orchid Pests and Diseases*, American Orchid Society, Cambridge, MA, United States.

Pirone, PP. 1978. *Diseases and pests of ornamental plants*. John Wiley and Sons, New York, NY, United States.

Watson, J. (ed). 2002. *Orchid Pests and Diseases*. American Orchid Society.

Horts, RK. 2001. *Westcott's plant disease handbook*. 7th Edition. Kluwer Academic Publishers, Norwell, MA, United States.

Wisler, GC. 1989. *How to Control Orchid Viruses. The Complete Guidebook*. Ratzlaff & Associates Maupin House Publishers, Gainesville, FL, United States.

Orchid Virus Testing

Agdia Immunostrips

30380 County Road
Elkhart, IN 46513
United States
Tel: +1 (574) 264 2615
Email: info@agdia.com
Web: www.agdia.com

Agitest

REGA Biotechnology Inc.
Taiwan
Email: regainfo@regabio.com.tw
Web: www.regabio.com.tw

Critter Creek Laboratory

400 Critter Creek Rd
Lincoln, CA 95648
Tel: +1 (916) 645 7111
Email: info@crittercreeklab.com
Web: www.crittercreeklab.com

Pocket Diagnostic

Forsite Diagnostics Ltd.
Sand Hutton Applied Innovation Campus
York, North Yorkshire
YO41 1LZ
United Kingdom
Tel: +44 (0) 1904 462600
Web: www.pocketdiagnostic.com

Tasag Elisa and Pathogen Testing Service

New Town Research Laboratories
13 St. John's Avenue
New Town, Tasmania 7008
Tel: +61 (0)3 6223 6845
Email: peter.cross@dpipwe.tas.gov.au
Web: www.dpiw.tas.gov.au (see Biosecurity >> ELISA Tests)

Lighting supplies, Wardian Cases, General Orchid Supplies

Australia

The Orchid Tray Company

PO Box 767
Sutherland, NSW 1499
Tel: +61 (0)413 037372
Email: sales@orchidtrays.com.au
Web: www.orchidtrays.com.au

United Kingdom

Rotherham Hydroponics Centre

Unit 8 Springfield Close
Rotherham
South Yorkshire, S61 4RQ
Tel: +44 (0) 1709 252256
Web: www.rotherhamhydroponicscentre.co.uk

Simply Control

5 Sawmill Yard
Blair Atholl, Perthshire PH18 5TL
United Kingdom
Tel: +44 (1796) 482 128
www.simplycontrol.co.uk

United States

All Seasons Gardening and Brewing Supply

924 8th Ave South
Nashville, TN 37203
Tel: +1 (800) 790 2188
Email: support@allseasonsnashville.com
Web: www.allseasonsnashville.com

Atlantis Hydroponics

2561 West Point Ave
College Park, GA 30337
Tel: +1 (888) 305 4450
Web: www.atlantishydroponics.com

Cal-West Tropical

11614 Sterling Avenue
Riverside, CA 92503
Tel: +1 (800) 301 9009
Web: www.calwesttropical.com

Charley's Greenhouse and Garden

17979 State Route 536
Mt. Vernon, WA 536
Tel: +1 (800) 322 4707
Email: customerservice@charleysgreenhouse.com
Web: www.charleysgreenhouse.com

Chile Moss

Comercial Mar Andino Ltda.
8373 North West 74 St.
Miami, FL 31666
Tel: +1 (305) 677 2404
Email: jaime@chilemoss.com
Web: www.chilemoss.com

Cool-Off Mistig Systems

5535 Memorial Drive
Suite 303F
Houston, TX 77007
Tel: +1 (800) 504 6478
Web: www.cool-off.com

Crystal River Growing Supplies

20 Park Road,
Painesville, OH 44077
Tel: +1 (888) 437 0022
Web: www.orchidsupplies.com

Ecologic Technologies

PO Box 1038
Pasadena, MD 21123
Tel: +1 (410) 431 7106
Web: www.cloudtops.com

Green Barn Orchid Supplies

5185 Conklin Drive
Delray Beach, FL 33484
Tel: +1 (651) 499 2810
Email: sales@greenbarnorchid.com
Web: shop.greenbarnorchid.com

Jim's Orchid Supplies

4157 Lebanon Rod
Fort Pierce, FL 34982
Tel: +1 (772) 489 0859
Email: sales@jimssupplies.com
Web: www.jimssupplies.com

Kelly's Korner Orchid Supplies

PO Box 539
Milford, NH 03055-0539
Tel: +1 (603) 673-9524
Web: www.kkorchid.com

Klima-Gro

10570 NC Highway 211 East
Aberdeen, NC
Tel: +1 (800) 5546 2476
Email: info@klimagro.com
Web: www.klimagro.com

LED Grow

648 Willow Avenue
Ukiah, CA 95482
Email: noaharc@yahoo.com
Web: www.ledgrow.com

Misting Pros Cooling Corporation

9444 Drift Way
Orangevale, CA 95662
Tel: +1 (877) 877 6478
Email: info@mistingpros.com
Web: www.mistingpros.com

Orchid Obsession

3525 Archwood St
Eugene, OR 97404
Tel: +1 (866) 689 0024
Web: www.orchidobsession.com

Orchidarium

16708 Third Street
Riverton, MN 56455
Tel: +1 (218) 546 7700
Email: info@orchidarium.com
Web: www.orchidarium.com

OrchidLight.com

27 Clover Lane
Burlington, VT 05408
Tel: +1 (800) 261 3101
Web: www.orchidlight.com

RePotme Orchid Supplies

10608 Floral Park Lane
North Potomac, MD 20878
Tel: +1 (301) 315 2344
Email: customer_service@repotme.com
Web: www.repotme.com

Roberts Flower Supply

12390 Root Road
Columbia Station, OH 44028
Tel: +1 (440) 236 5571
Email: rfs@orchidmix.com
Web: www.orchidmix.com

Tindara Orchid and Garden Supply Center

30 Spofford Street
Georgetown, MA 01833
Tel: +1 (800) 937 5758
Email: info@tindaraorchids.com
Web: www.tindaraorchids.com

US Orchid Supplies

1621 South Rose Avenue
Oxnard, CA
Tel: +1 (805) 247 0086
Email: usorchidsupplies@gmail.com
Web: www.usorchidsupplies.com

Waterfiltersonline.com

1124 E. Franklin Street
Huntington, IN 46750
Email: customerservice@waterfiltersonline.com
Web: www.waterfiltersonline.com

Glossary

abaxial: facing away from the central line, usually on the underside.

abbreviated: shortened.

acaulescent: having no stem, or appearing not to have one.

actinomorphic: radially symmetrical.

acuminate: narrowing to a sharp point.

acute: apical angle less than 90 degrees, with the sides straight to slightly convex.

adaxial: facing toward the central line, usually on the upper side.

adherent: dissimilar parts touching, but not joined.

adpressed: pressed close or lying flat against something.

adnate: dissimilar parts joined.

adventitious: appearing in an abnormal or unusual position, such as a growth that forms on a leaf or an inflorescence (adventitious plantlets are also known as “keiki”).

aerial root: referring to adventitious roots produced along the stem; roots that usually do not enter the medium.

aggregate: close together, clustered.

alate: having wings, winged.

alba: white form of a flower, often an albino.

albino: an unpigmented phenotype, often white.

albinistic: referring to an unpigmented or white phenotype.

alliance: a group of closely related genera, such as the *Oncidium* alliance (*Oncidiinae*).

alternate: occurring at different levels on opposite sides of a stem; leaves that are not directly across from each other.

Amazônia: a phytogeographic region of Brazil, the Amazon rainforest.

ancipitous: sharp-edged.

Angraecoid: members of the subtribes *Angraecinae* and *Aeranginae*.

annulus: a ring; an obscure ring that surrounds the rhizome at the emergence of an inflorescence.

anther: the pollen-bearing part of the stamen.

anther cap: the covering over orchid pollen masses (pollinia) at the apex of the column.

apex: the tip.

apical: at or near the tip.

apiculate: ending abruptly in a sharp point.

arroyo: a steep-sided gully formed by running water, usually in an arid or semi-arid region.

articulated: jointed, separately freely by a clean scar.

ascending: moving or growing upward.

attenuate: narrowing to a point.

atypical: not typical, or not conforming to the type.

axil: angle between the upper surface of a leaf and stem where they join.

axillary: growing from the axil.

backbulb: an old, often leafless, sympodial pseudobulb that is alive and can be used to propagate a new plant.

basal: growing from the base of a stem, often used in reference to leaves at the base of a stem.

basionym: the original name; a legitimate scientific name of a species that has since been renamed and from which the new name is partially derived.

bifoliate: having two apical leaves on a single pseudobulb.

bifurcate: dividing into two branches.

bilobed: divided into two lobes.

blade: the expanded portion of a leaf above the petiole.

blotch: an irregular colour spot on the sepals, petals or leaves.

bract: a sheath-like structure on the peduncle, rhizome, pseudobulb or inflorescence.

bristly: with stiff hairs.

bud: an unopened flower or a new shoot prior to elongation.

bulb: in orchids referring to the underground storage unit from which leaves and inflorescences emerge.

Caatinga: xeric shrubland, seasonally deciduous, a phytogeographic or eco-region of northeastern Brazil.

calli: plural of callus (q.v.).

callus: a hard protuberance or thickening, usually on the lip and sometimes the petals of an orchid.

calyx: the outermost segments of a flower, the sepals.

campanulate: bell-shaped.

cap: a removable cover over the pollinia, such as the anther cap that covers the pollinia.

capitate: having an obvious head; swollen at the apex.

capsule: the seed capsule or pod of an orchid.

caudate: tail or tail-like.

caulescent: stem-like.

cauline: belonging to the stem.

Cerrado: tropical woodland savannah eco-region of Brazil,

predominantly in the states of Minas Gerais and Goiás. The region is crossed by gallery forests and stream valleys, and is highly diverse in plant and animal species.

chartaceous: like paper.

chlorotic: a yellow or white discolouration of normally green tissue, lacking chlorophyll.

cilia: minute hairs.

ciliate: having minute hairs.

cirrhus: also spelled cirrus, thin, tendril-like, wispy, often referring to the antennae found on the lips of some orchids.

clasping: referring to leaf base or bracts that enfold the stem, pseudobulb or inflorescence.

clavate: club-shaped, thickened at the end.

claw: the narrow stem-like base of a petal or a sepal.

cleistogamous: a flower that self fertilises.

clone: also known as the clonal name, referring to all the vegetative manifestations (e.g. divisions) of a single orchid plant grown originally from a single seed; designated within single quotes.

column: the fused male and female sexual organs in the centre of an orchid flower, above the labellum (or below if non-resupinate), also known as the gynandrium.

column foot: the extension at the base of the column to which the lip is attached.

compact: short or compressed.

complanate: having a flattened or compressed aspect.

compound: made up of two or more similar parts.

compressed: flattened.

concave: curving inward, basin-shaped, the opposite of convex.

conduplicate: folded together lengthwise, usually referring to leaves.

congested: flowers closely spaced on an inflorescence.

conical: cone-shaped.

coniferous forest: a forest of trees that bear cones and evergreen leaves, such as pines, firs, spruce, etc.

connate: having similar parts joined.

constricted: drawn together or compressed at some point.

convex: curving outward, the opposite of concave.

convolute: rolled up.

cordate: heart-shape.

cordiform: in the form of a heart.

cordillera: a chain of mountains or mountain ranges.

coriaceous: leathery.

corymb: A type of inflorescence in which the outer flower stalks are longer than the inner flowers, resulting in a cluster that is flat on top.

corymbose: like a corymb.

costate: with longitudinal raised ridges.

crested: with irregular, longitudinal lamellae.

crispate: finely wavy along the margin.

cuculate: forming a hood, hooded.

cultivar: a variety of plant usually considered to be a product of intentional breeding.

cupped: resembling a small cup.

cylindrical: round in cross-section, shaped like a cylinder. Equal from top to bottom.

deciduous: plants that annually lose their leaves at the end of the growing season.

decumbent: lying down.

deflexed: bent or turned downward abruptly.

dentate: tooth-like margins that are usually sharp and coarse.

denticulate: having a very fine toothed margins or projections; minutely dentate.

descending: moving or growing in a downward direction.

determinate: not continuing to grow indefinitely at the apex; a finite growth.

diandrous: having two anthers.

dilated: becoming wider or larger; expanded.

dimorphous: having two distinct forms.

dioecious: having male and female flowers on the same plant.

diploid: two sets of chromosomes; the usual number.

disc: a fleshy structure found on the labellum of some orchids.

distal: away from the centre or point of attachment, towards the end.

distichous: flowers or leaves occurring in two ranks, usually on opposite sides of the stem.

diurnal: during the day, referring to flowers that are open or fragrant only during the day.

dorsal: referring to the back or the upper side; e.g. the dorsal sepal.

ecotone: a transitional zone between two communities containing characteristic species of each.

elaiophore: a floral oil-bearing gland.

elliptic: shaped like an ellipse, widest at the middle and equal at both ends.

elongate: very long or drawn out.

emarginate: referring to a leaf with a shallowly notched tip.

endemic: native to a particular region; not found anywhere else.

ensiform: sword-shaped.

entire: margins that are not broken, toothed, fringed or serrated.

epichile: the terminal portion of a divided lip.

epiphyte: a plant that grows on another plant for support, but does not obtain nutrients from the host.

epiphytic: relating to epiphytes, growing on another plant.

equitant: folded lengthwise such that the base of each leaf enfolds the next.

erect: growing upright.

etymology: the derivation of a word.

evergreen: a plant that retains its leaves year round and does not lose them all at once.

excavate: to make a hole or to dig or scoop out.

eye: the vegetative bud at the base or along nodes of the pseudobulbs of sympodial orchids.

falcate: sickle-shape.

family: the usual major subdivision of an order or suborder, commonly consisting of a group of related character-sharing genera, e.g. the orchid family. In plants, family names end in -aceae, as in Orchidaceae. In zoology, the suffix is -idae.

fascicle: a bundle or cluster of stems, leaves or flowers (sometimes continuously blooming, as in several genera in the Pleurothallidinae).

fenestrate: window or net-like.

fertilisation: the union of the male (pollen) and female (ovule) gametes that gives rise to the seed. Also refers to the application of nutrients (fertiliser) to plants.

fetid: foul-smelling, sometimes spelled "foetid".

fibrous: resembling fibres; often pertaining to a root system with many roots of similar length and thickness.

filament: referring to the stalk that supports the anther; a thread-like structure.

filamentous: referring to the form of threads or filaments.

filiform: slender like a hair or thread.

fimbriate: a margin with long, narrow appendages or fringes.

flabelliform: fan-shaped.

flexuous: bending or winding alternately from side to side.

flora: all the plants native to a given area or country.

floriferous: a freely flowering plant.

flower: the reproductive structure found in flowering plants.

foot: referring to the column foot.

forked: having two or more prongs.

form: a secondary taxonomic rank below that of variety, referring to individuals or groups with minor, but noticeable difference(s), often colour forms (e.g. alba, semi-alba, caerulea, xanthina), but sometimes other physical features (such as size, shape, or mutations). Most importantly, forms occur within populations of typical individuals.

fractiflex: arranged in a zig-zag manner.

fringed: furnished with hair like appendages on the edges.

fruit: a capsule or seed pod; the structure containing the seeds.

fugacious: brief, lasting a very short time.

furrowed: with longitudinal grooves.

fusiform: slightly larger in the middle and tapering at each end; cigar-shaped.

genera: plural of genus.

geniculate: bent at a sharp angle.

genus: a taxonomic grouping containing one or more closely-related species.

gibbose: protuberant; a surface with one or more large elevations.

glabrous: smooth, hairless.

gland: a bump, depression or appendage on the surface of a plant that produces a sticky or greasy fluid; a secreting organ.

glandular: possessing glands.

glaucous: having a whitish, bluish or greyish waxy coating on the foliage.

globose: shaped like a ball, globe-shaped.

glutinous: glue-like, sticky.

grooved: having furrows or ridges.

gynandrium: an organ containing both male and female portions of the orchid flower. Also known as the column.

gynostemium: the column, formed by the fusion of the stamens and pistil into a single structure.

habit: general form or mode of growth.

habitat: the environment where an organism normally occurs.

hastate: a narrow triangular shape; spear-shape or arrowhead-shape.

herbarium: a collection of preserved (usually dried) plant specimens are usually labelled with name and collection data.

heteranthous: a growth that produces neither pseudobulb or leaf yet from which a new inflorescence arises.

heteroblastic: showing a marked difference between the juvenile and adult stages.

heterotypic synonym: synonyms that refer to different types with which different names are associated, but which the taxonomist in question regards as the same taxon with a different type.

hirsute: covered with long, rather coarse or stiff hairs.

hispid: covered with stiff or rough hair, bristly.

homoblastic: showing no difference between the juvenile and adult stages.

homotypic synonyms: when the nomenclature of a name is incorrect, or when a species is moved from one genus to another. Homotypic synonyms have a single (set of) type(s).

hooded: floral segments that form a hood, cuculate.

horizontal: parallel to the plane, lying down or flat.

horned: having horn-like projections.

humidity: the amount of water vapour in the air.

hypochile: the basal part of a segmented lip.

hysteranthous: having leaves that expand after the flowers have opened.

imbricate: overlapping or layered in a shingle-like arrangement.

immaculate: free from spots or marks.

imperfect: an incomplete flower lacking part or all of the reproductive structures.

incised: having a deep, usually irregular cut.

inconspicuous: not obvious.

indeterminate: of indeterminate or protracted growth. Referring to a raceme in which the lower flowers open first.

indigenous: native to a given region or ecosystem.

inflorescence: the flowering stem.

inflorescence length: (as used in this book) the combined length of the peduncle and rachis.

infundibuliform: funnel-shaped.

internode: referring to the segment of a stem between two nodes.

irregular: referring to a flower where a series of parts, such as the petals, are not alike.

jointed: having very distinct nodes.

keel: a distinct, raised, sharp ridge, like the keel of a boat.

keiki: a Hawaiian word for “baby”, referring to an adventitious plantlet that develops from an inflorescence, cane or leaf of an orchid.

labellum: the modified, generally showy, third petal of the flower that often acts as a landing platform for the pollinators. Also known as the lip.

lacerate: torn.

laciniate: cut into narrow ribbon-like segments.

lamina: leaf blade.

lanceolate: shaped like the head of a lance; narrow and tapering to a pointed apex.

lateral: originating from the side, such as an inflorescence emanating from the side of a pseudobulb.

lax: loose, flexible, drooping.

leaf: the usually green and flat plant organs specialised for photosynthesis that emerge from the stem or rhizome.

leaf length: (as used in this book) the length of the leaf including the petiole and leaf blade.

leafless: lacking leaves.

lepanthiform: referring to imbricating, apically open, funnel-shaped sheaths that enclose the ramicauls of the pleurothallid genera *Lepanthes*, *Lepanthopsis* and *Trichosalpinx*.

ligulate: strap-shaped.

linear: usually referring to long narrow leaves (usually much longer than wide) with parallel sides.

lingulate: tongue-shape.

lip: the labellum of an orchid flower; a modified petal that is usually showy, often serving as a landing platform for insect pollinators with visual and other guides to direct them towards the pollen.

lithophyte: any plant that grows on or lives attached to rocks, also occasionally known as epilithic.

lithophytic: the habit of growing on rocks.

lobe: any division or segment of an organ such as a leaf or floral segment.

lorate: thong or strap-shaped.

maculate: with spots or blotches.

Mata Atlântica: Atlantic forest, comprised of tropical and subtropical moist forests, tropical dry forests, tropical savanna, semi-deciduous forests and mangrove forests. This region is found in eastern Brazil (extending along the Atlantic coast from the states of Rio Grande do Norte in the north to Rio Grande do Sul in the south) and inland to parts of Paraguay and the Misiones Province of Argentina.

medium: the potting material(s) used for growing plants.

membranous: having the properties of a membrane (thin, soft, flexible, often not green).

mentum: a backward-pointing, chin-like protrusion formed by the fusion of the lateral sepals and the column foot that is found in most members of the Dendrobiinae and some other orchids.

mericlone: an artificially produced clone of an orchid.

mesochile: the middle part of a segmented lip.

mid-lobe: the middle lobe of a three-lobed labellum.

midrib: central vein or rib of a leaf.

mimicry: when an organism has evolved to share common characteristics with another group to its advantage. In orchids, this is usually to bring about pollination by deception.

minutely petiolate: with a very short (1–3 mm) petiole.

monandrous: having a single functional stamen.

monoecious: having male and female organs in separate flowers.

monopodial: having one foot. A single vegetative shoot that grows continually from a central growing point, as opposed to sympodial growth. One of the two main types of orchid growth habits.

monotypic: a genus with only one representative species, and thus one taxonomic type.

montane: of the mountains. From mountains or highland areas; generally with cool, moist temperatures. A vegetative region between the foothill and subalpine zones.

motile: able to move spontaneously up and down or side to side, as in the labellum of many orchid species.

mucro: a sharp terminal point.

mucronate: usually referring to a leaf apex with midrib projecting to form an acute point.

nanometre: is one-billionth of a meter, a measurement often applied to the description of types of light.

narrow endemic: a species that is found only in a very small geographic region (such as on a single mountain).

natural hybrid: a hybrid that occurs naturally in the wild where related species occur together and their bloom times overlap.

navicular: boat-shaped.

nectar: a sugary exudate of various glands on the flowers, leaves and/or stems of plants, usually attracting insects and birds.

nectary: the gland that produces nectar.

nerve: the small vein of a leaf.

netted: referring to veins or a pattern that form a connected network.

nocturnal: of the night, in this instance referring to flowers that are open or fragrant only during the night.

node: a swelling or joint of an inflorescence, stem or pseudobulb from which an inflorescence, adventitious plantlet or roots can emerge.

nomenclature: a system of naming.

non-resupinate: orchid flowers in which the labellum is positioned uppermost relative to the axis of the inflorescence; an orchid flower that does not twist 180 degrees before opening, giving the flower an upside-down appearance.

oblong: longer than broad, with parallel sides; width about one-third the length.

obovate: shaped like an egg, with the broader portion towards the apex, such as an obovate leaf.

obovoid: egg-shaped, but with broader part towards apex, e.g. an obovoid pseudobulb.

obtuse: apex blunt, having an angle that exceeds 90 degrees with straight or convex sides.

offset: a lateral shoot, above ground, that produces roots while still attached to the parent plant; also known as an adventitious plantlet or “keiki”.

orbicular: round.

orchidist: a person interested in orchids and their culture.

ornate: elaborately marked, patterned or coloured.

oscillate: to move in various directions.

osmophore: a gland that produces fragrance or odour.

oval: shaped like a thickened ellipse.

ovary: the basal portion of the pistil containing the ovules; when pollinated and fertilised, the ovary develops into the fruit where seeds are formed.

ovate: shaped like that outline of an egg, a 2-dimensional term, wider towards the base.

ovoid: egg-shaped, a 3-dimensional term, wider towards the base.

ovule: an outgrowth of the ovary, which upon fertilisation, becomes the seed.

pandurate: violin-shaped, narrowest near the middle.

panicle: a branching inflorescence.

paniculate: arranged in panicle.

papillae: a small nipple like protuberance.

papillose: covered with small nipple-like projections.

páramo: a type of alpine tundra ecosystem composed mostly of grasses, shrubs and giant rosette plants found in the northern

Andes of South America and adjacent southern Central America. Occurring above the continuous forest line and below the permanent snow line.

parasite: an organism that grows in or on another life-form, deriving all or part of its nutrients from it.

pedicel: the stalk of an individual flower.

pedicillate ovary: where the pedicel is also the ovary.

peduncle: the flowerless stem of an inflorescence (also known as a scape).

peloric: a mutation in which the petals are similar to the lip in shape and pattern.

pendent: hanging or drooping.

perianth: “around the anther”; a collective term referring to the sepals and petals (the tepals).

petal: one of the three inner segments of the orchid flower positioned between the three sepals. One petal is modified into the labellum in the orchid family.

petaloid: having the appearance of a petal.

petiole: the stalk of a leaf that attaches it to the stem.

phyllodium: a primordial leaf (undifferentiated state).

pilose: having a covering of soft hairs.

pistil: the female organ of the flower that produces the seed; a collective term for the stigma, style and ovary.

plateau: an elevated relatively level expanse of land.

pleated: folded like a fan.

Pleurothallid: any member of the tribe Pleurothallidinae.

plicate: folded, corrugate, crumpled.

pod: a general term referring to the seed bearing fruit.

pollinarium: an inclusive term for the pollination unit, consisting of the pollinia, stipe (or caudicle) and viscidium.

pollination: the act of placing pollen onto the stigmatic surface.

pollinator: in nature, the insect, bird, mammal or other organisms by which flowers are pollinated.

pollinia: plural of pollinium.

pollinium: waxy pollen clump or packet found in the anthers of the vast majority of orchids.

polymorphic: occurring in different forms in individual organisms of the same species.

porrect: stretched or extended outward and forward.

pre-montane forest: lower montane forest.

primary forest: old growth forest.

proboscis: referring to the long, flexible mouth parts of an insect.

procumbent: lying flat.

prostrate: lying flat.

proteranthous: development of an inflorescence from the top of a vegetative shoot prior to development of the leaves and the terminal internode.

pseudobulb: the thickened stem of a sympodial orchid arising from a rhizome that has evolved to store water.

puberulent: covered in soft, downy hairs.

pubescence: a covering of hairs.

pubescent: covered with hairs.

puncate: spotted, or marked with dots, depressions or translucent glands.

pyriform: pear-shape.

quadrate: square, four-sided.

raceme: a simple unbranched inflorescence of one or more flowers.

rachis: the axis or stem of the inflorescence beyond the peduncle that bears flowers.

radicle: the primary root of a germinating seed.

ramicaul: leaf-bearing stem of members of the subtribe Pleurothallidinae.

rank: referring to the arrangement of flowers or leaves in vertical rows.

recurved: bent down or backwards.

reniform: kidney-shaped.

repent: creeping, as applied to an elongated rhizome between growths.

Restinga: coastal tropical and subtropical moist broadleaf forest that forms on sandy, acidic and nutrient poor soils. Found on the eastern coast of Brazil. It is characterised by sandy dunes with shrubs near the ocean, and low forests inland.

resupinate: twisted by 180 degrees. In orchids, the buds usually do this before opening, positioning the labellum lowermost. A resupinate orchid flower bears the lip lowermost.

reticulate: net-like, resembling netting.

retorse: pointing backwards and downwards.

retuse: having a rounded apex with a small notch or indentation.

revolute: rolled downward or backward.

rhizome: a root-bearing stem that is prostrate or underground, sometimes erect or scandent, from which the stems or pseudobulbs, sometimes leaves, or rarely inflorescences originate.

ridged: referring to a plant part, such as leaves, stems, inflorescences, with strip(s) of raised tissue.

riverine forest: a forest growing along watercourses.

root: a leafless plant segment, usually underground, but sometimes aerial in epiphytic orchids, which takes up moisture and nutrients. Roots also provide support for the plant.

rosette: referring to plants in which the leaves radiate out from a central axis to form a circle.

rostellum: a small, beak-like process on the stigma that produces a viscous substance involved in pollination.

ruffled: having a wavy margin.

rugose: irregularly wrinkled.

rugulose: finely and irregularly wrinkled.

rupicolous: growing on rock.

saccate: having the form of sac, bag or pouch.

sagittate: arrowhead-shaped.

savannah: a tropical grassland system which may have spaced trees or shrubs such that the canopy is not closed. Also spelled "savanna".

scaberulous: minutely scabrous.

scabrid: slightly rough to the touch.

scabrous: rough to the touch.

scandent: climbing.

scape: a long peduncle.

scapose: having flowers on a scape.

scarious: dry and papery.

sclerophyll forest: a forest that can be either a specialised type of savannah, or dry tropical forest with a specific type of vegetation with hard (sclera) leaves (phyllon).

scutate: shield-shaped.

scutiform: in the form of a shield.

seasonal: pertaining to a certain period of the year.

secondary forest: a forest that has re-grown after fire, logging or insect damage.

secund: of a raceme; flowers occurring on one side of a raceme.

segment: one of the parts of a plant.

semi-terete: semi-round.

sepal: one of the three outer parts of an orchid flower; usually the topmost dorsal and the two lower lateral segments (reversed in non-resupinate flowers).

sepaline: pertaining to the sepal.

sepaline cup: the connate bases of the sepals that form a cup-like shape.

sepaline tube: the sepals being connate for most of their length to form a tube-like shape.

septate: divided by or having a septum.

sequential: one at a time, in sequence.

serrate: leaves and other plant parts that have tooth-like edges.

serrulate: finely serrate.

sessile: attached directly at the base without a stalk.

setaceous: bristly.

setiform: bristle-like.

setose: bristly.

setula: a short bristle or hair.

setulose: finely setose, covered with small hairs or bristles.

sheath: a protective growth that envelops the stem or inflorescence.

shoot: the new growth of a plant.

shortly petiolate: a petiole forming a small percentage of the length of the leaf.

sibling: an orchid related to another orchid by virtue of having been produced from the same seed pod.

side-lobes: lobes on the side.

sigmoid: resembling the lower case Greek letter sigma (ς).

simple: not compound.

simultaneously: at the same time, usually referring to all the flowers open at one time on the inflorescence.

sinus: the area between two lobes of a lip, leaf or other plant part.

sinuous: wavy.

smooth: a surface free of projections (no bristles, hairs, not rough or scabrous), glabrous.

solitary: one, by itself.

spathe: a bract that surrounds or subtends a spadix or other inflorescence.

spathulate: alternative spelling of spatulate; spoon-shaped.

spatulate: spoon-shaped; oblong or rounded with a long narrow base.

species: the scientific category of taxonomic classification that defines a group of organisms that have one or more unifying characteristics separating it from any other group; a further division of genus. Classically, species were defined as populations of organisms capable of interbreeding and producing fertile offspring, but this definition is not suited to plants; different species and even (albeit more rarely) different genera can often cross and produce fertile offspring.

speculum: a mirror, a shiny coloured region of the labellum, as in several species of the terrestrial genus *Ophrys*.

spiculate: covered with or divided into small spikes.

spicule: a small sharp point.

spike: an unbranched inflorescence bearing sessile (lacking pedicel) flowers.

spur: the tubular extension at the base of some flowers, which sometimes contains nectar.

stamen: the male portion of the flower composed of a filament and an anther bearing pollen.

staminode: a stamen that does not produce pollen.

stipe: the stalk that connects the pollinia and viscidium in a pollinarium.

stipes: plural of stipe.

stelidia: column teeth.

stolon: a horizontally spreading or arching stem; usually

running along the ground or just below the surface; produces separate growths and new roots from buds at its tips.

stoloniferous: bearing stolons.

sub-acute: the angle of the apex at slightly less than 90 degrees.

sub-erect: almost erect.

submontane forest: lower montane forests.

subpetiolate: ill-defined petiole, not distinct.

subspecies: a subdivision of a species, usually geographically restricted and characterised by one or more distinct morphological features from the nominate species.

subtend: immediately below or behind.

subtribe: a subdivision of a tribe; a group of related genera with shared characteristics.

subulate: tapering to a point, awl-shaped.

successive: consecutively, coming one after another.

suffused: literally, to spread through or over with something, e.g. liquid, colour or light. Here used to refer to an overlay of a specific colour.

succulent: a plant bearing adaptations to arid conditions, capable of storing water during prolonged dry conditions.

sympodial: a form of lateral growth in which each new shoot arises from a bud subordinate to the apical meristem; the apical meristem may form a determinate structure or be aborted.

synanthous: with flowers and leaves that emerge at the same time; usually referring to a developing inflorescence emerging with the new growth.

synonym: a genus or species name that is no longer in use.

synsepal: a feature common to many orchids in which the two ventral or lateral sepals are united for most or all of their length, appearing as one segment.

taxon: a group of plants or animals which a taxonomist has defined as a unit.

taxonomic: relating to taxonomy.

taxonomy: the practice and science of classification.

terete: cylindrical in cross section.

terminal: at the end, such as a flower arising from the apex of a growth.

terrestrial: living on the ground.

tessellate: having a chequered or mosaic appearance.

tetragonal: four-sided.

tetraploid: having four times the haploid number of chromosomes, i.e. with four sets of chromosomes.

texture: the feel or shape of a surface.

throat: the basal, usually almost tubular portion of the labellum of an orchid flower.

transverse: a right angles to the long axis, across, from side to side.

triangular: three-sided.

tribe: a group of closely related genera.

trilobed: with three lobes.

triquetrous: three-edged.

truncate: terminating abruptly, as if having the end or point cut off.

tubercle: a small rounded wart-like protuberance.

tubular: tube-shaped.

tuft: a group of leaves or stems that are clustered together at the base.

tunicate: with concentric or sheathing layers of tissue.

twisted: having parts that are spiralling.

type (or type specimen): a physical specimen usually kept in a museum or herbarium upon which the scientific name of a taxon is based.

umbel: a type of inflorescence that consists of a number of short

pedicels equal in length that spread from a common point.

umbellate: bearing umbels.

undulate: having a wavy margin or rippled surface.

unguiculate: claw or talon-like.

unifacial: orientated towards a single face.

unifoliate: bearing a single leaf.

variety: plants within a species that manifest minor, but consistently distinct characteristics; usually geographically isolated.

vector: referring to an organism that carries or transmits a pathogenic fungus, bacterium, virus or other disease causing agent from plant to plant.

vegetative: referring to asexual means of reproduction; the leafy portion of a plant.

vein: referring to the vascular tissue that transports water, nutrients and carbohydrates throughout a leaf and the plant; sometimes refers to patterning.

velamen: a spongy covering of the roots of epiphytic orchids; helps to prevent water loss and aids in absorption.

venation: referring to the arrangement of veins in a leaf, often refers to a pattern.

ventricose: inflated or swollen on one side.

ventral: pertaining to the underside or lower surface.

vermiculate: sinuous, tortuous or worm-like.

verrucose: warty, wart-like.

verticillate: forming whorls, such as whorls of leaves around a stem, or flowers on an inflorescence

vestiture: referring to the surface covering (e.g. hairs or wax).

villose: hairy, shaggy.

villous: covered with long soft hairs.

vine: a plant that climbs.

viscid: having the properties of glue; high viscosity.

viscidium: the sticky disc secreted by the rostellum that assists in attaching the pollinia to a pollinator.

whorl: referring to three or more plant parts attached at the same point.

widespread: occurring over a considerable extent or area.

winged: having an organ with a usually flat projection on one or more sides, like a wing.

woolly: having long, often matted, hairs.

xanthic: having a yellow colour, usually referring to a yellow-flowered form.

xerophyte: a plant native to an arid region.

xerophytic: a plant that has adapted to living in a dry, arid habitat.

zygomorphic: capable of being divided equally along only one plane, as in the zygomorphic symmetry of the orchid family (as opposed to actinomorphic); pertaining to flowers.

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Figure 5.12 (overleaf) A study of the finely marked blooms of *Bulbophyllum treschii* (Grower: Mary Gerritsen).



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Figure 5.13 (facing page) *Masdevallia encephala*, as its name suggests, has an unusual, head-like flower (Grower: Ron Parsons).



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Figure 5.14 (facing page) *Masdevallia staaliana* has pretty, intricate little blooms of orangey yellow and deep red (Grower: John Leathers).





About the Authors

The authors, Mary Gerritsen and Ron Parsons, are respected authorities in the area of orchid cultivation and conservation. They have travelled extensively in the pursuit of their research, both individually and in concert. This publication represents their third collaboration.

Mary Gerritsen

Mary, a native of Calgary, Canada currently living in San Mateo, California, has been a serious gardener for 40 years and an orchid enthusiast for 16 years. She has travelled widely to see orchids in nature, and has visited parts of Canada and the United States, as well as Mexico, Costa Rica, Panama, Mexico, Colombia, Venezuela, Ecuador, Peru, Brazil, Malaysia, China, Europe and Australia in their pursuit. Mary has a Ph.D. in pharmacology from the University of Calgary, and worked in both academic institutions as well as pharmaceutical and biotechnology companies. She is currently a consulting professor at Stanford University and an independent consultant in the life sciences. She has authored over a hundred biomedical science articles, and also authored two books in concert with her co-author, Ron Parsons. Mary has a large collection of cool and intermediate growing miniature orchids, is the former president of the Peninsula Orchid Society and current president of the San Francisco Orchid Society, as well as a member of the board of directors of the Orchid Conservation Alliance.



Ron Parsons

Ron, a native of the San Francisco Bay Area, has been growing orchids for nearly 40 years, during which time he has amassed a large collection of miniature orchid species that he maintains both under lights and in an unheated greenhouse. His travels in pursuit of these extraordinary plants have taken him to many parts of the United States and Canada, as well as Costa Rica, Panama, Guatemala, Mexico, Belize, Australia, the Philippines, China and Europe. With over 30 years of experience as a photographer, Ron has built up a vast photo-library of digital and analogue images that catalogues a tremendous variety of different orchid taxa. Ron, whose other interests include wildflowers, succulents, cacti, bromeliads, gesneriads and carnivorous plants, is the author of two books, and has written numerous articles on orchids, presented over one thousand lectures on various botanical topics, and has over two thousand of his flower photographs published in magazines, journals and books.



Figure 5.15 (facing page) The wonderful, unusually coloured, dark flowers of *Chiloschista lunifera* (Grower: Andy's Orchids).



Ron Parsons (left) and Mary Gerritsen (right) have cultivated, studied and photographed orchids all over the world. They prepared this two volume work in order to provide a comprehensive and beautifully illustrated guide to some of the world's finest miniature orchid taxa.



Front cover: the distinctive, netted leaves and intricate flowers of *Lepanthes calodictyon* (Grower: Marni Turkel).

Back cover: the delicate bloom of *Specklinia gongylodes* (Grower: John Leathers).



A COMPENDIUM *of* miniature ORCHID SPECIES

Known for their often exquisite flowers, orchids represent perhaps the largest of all flowering plant families on Earth. These remarkable plants occur on all continents bar Antarctica, and occupy almost every conceivable ecological niche, from the arid deserts of the horse latitudes to the rainforests, and maritime shores to high alpine meadows. Yet only a fraction of the total species known is maintained in cultivation, and the majority of these are recognised for their sizeable or flamboyant blooms. These richly illustrated volumes present the true gems of the orchid family, the miniature orchid species, which can produce some of the most unusual and often spectacular flowers in the plant kingdom despite their diminutive size. Moreover, and unlike many of the larger orchids, miniature orchids often have striking leaf and plant forms. Featuring in-depth descriptions of over 500 individual species entries across more than 120 genera, this comprehensive work incorporates newly published taxonomic data with guidance borne of decades of combined expertise in orchid culture. It also includes photographs of all represented species, including various colour forms, varieties, subspecies and similar species, as well as a valuable and exhaustive cross-index of orchid names and synonyms.

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